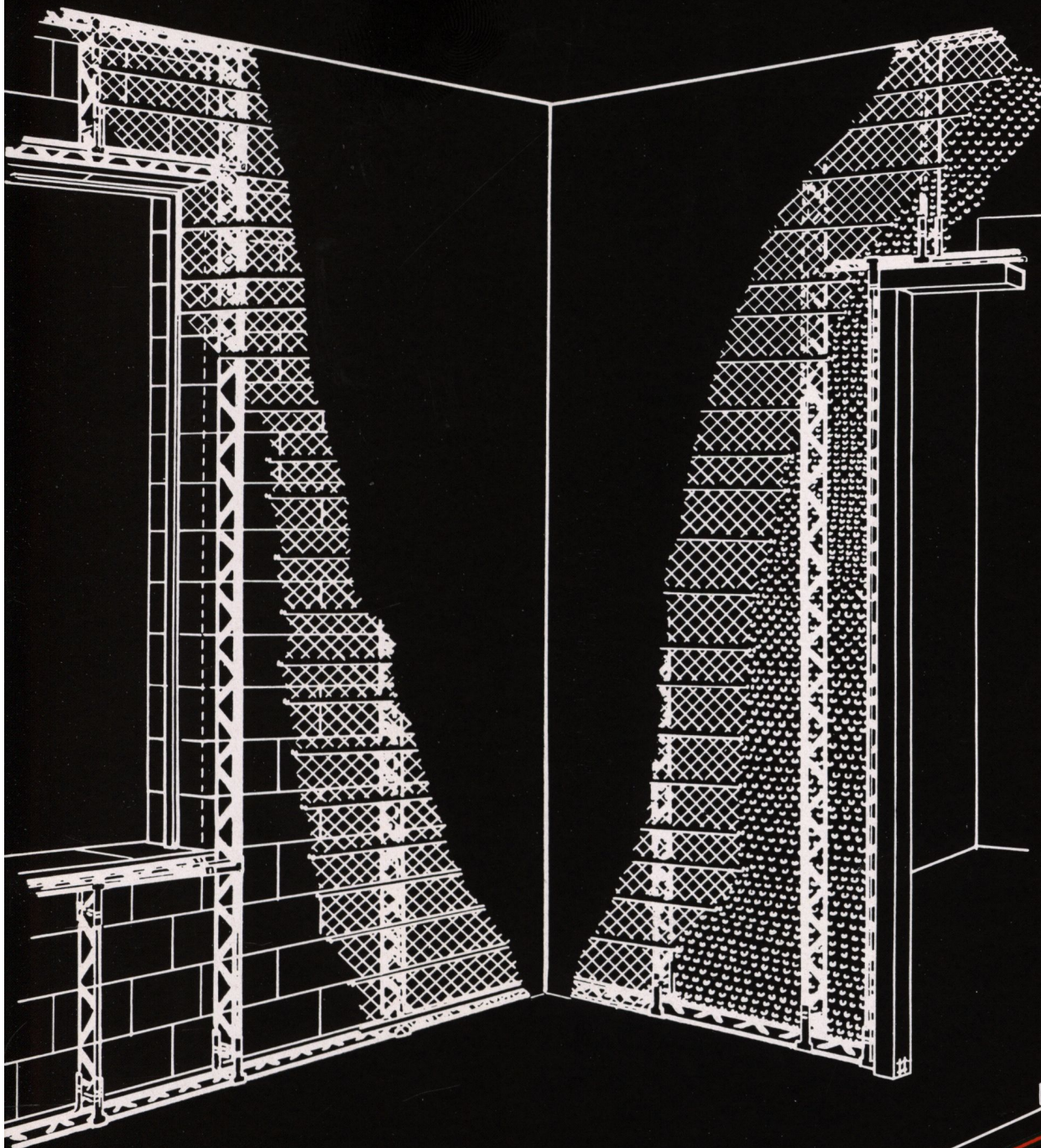


**A MANUAL FOR ARCHITECTS,
ENGINEERS AND CONTRACTORS**



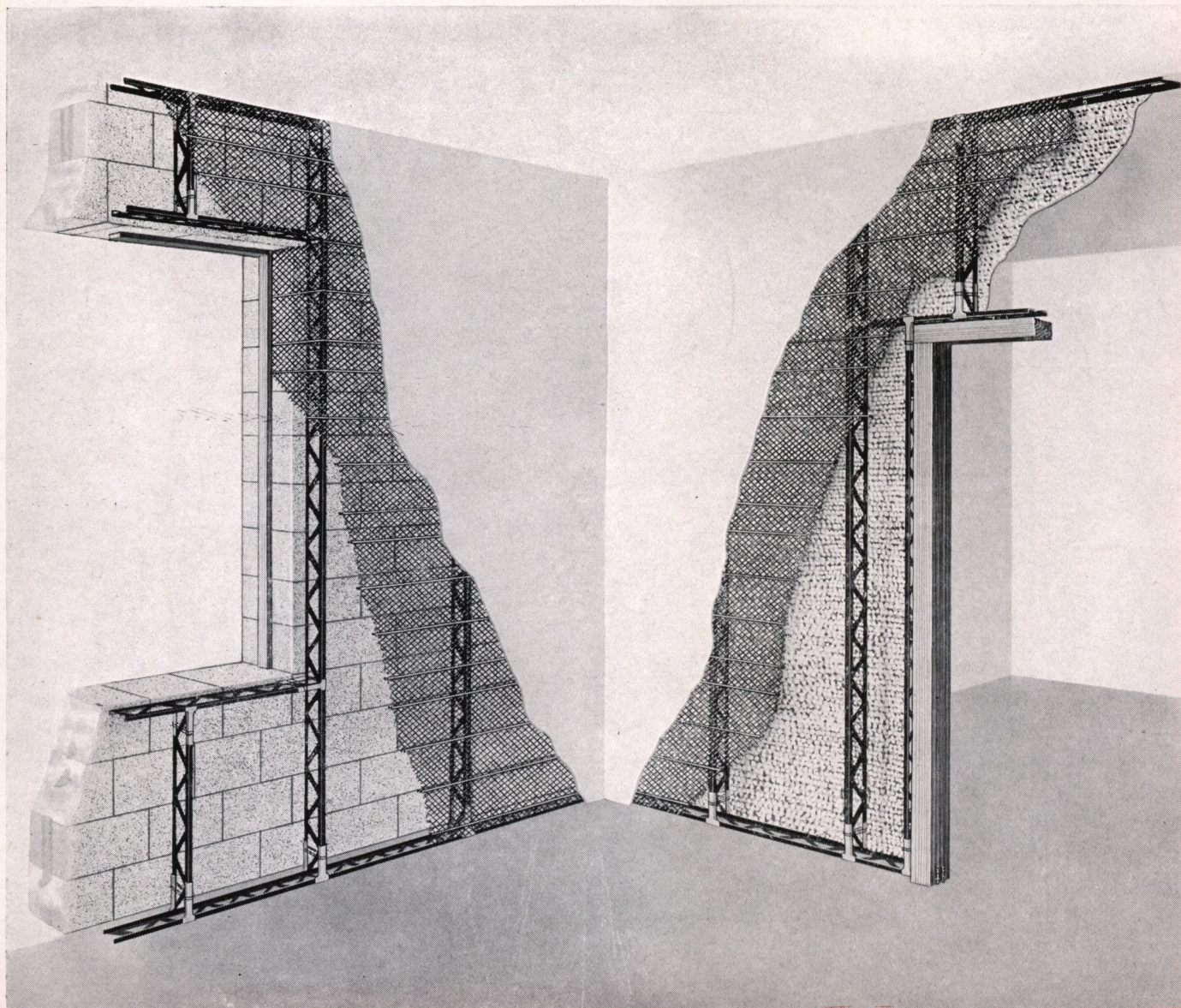
THE CONSOLIDATED EXPANDED METAL CO'S.



BAR-Z-SYSTEM

**NON-BEARING PARTITIONS
FREE STANDING WALL FURRING**

BAR-Z-SYSTEM NON-BEARING STEEL STUD PARTITIONS AND FREE STANDING WALL FURRING



IN the following pages we have endeavored to present pertinent data and details relative to the Bar-Z-System of Non-Bearing—Non-Burnable—Hollow Plastered Steel Stud and Metal Lath Partitions, also the Bar-Z-System of Free Standing Wall Furring.

All recommendations and details herein presented are based on a study of best practices as developed in the actual use of these systems and products in many hundreds of structures, large and small, throughout the United States, over a period of years, since we first introduced these systems and products in 1930.

A study of the following data will indicate that substantial reductions can be effected in the dead load carried by floors, framing and footings of a structure, also that the installation of plumb-

ing, heating, ventilating and electrical work can be considerably simplified by using Bar-Z-Partitions and Bar-Z-Wall Furring as compared with block or masonry types of partitions and furring. These features, obviously, make possible actual monetary savings in the job as a whole.

Bar-Z-Partitions and Bar-Z-Wall Furring, of themselves, cost no more, and under many conditions cost less, than the heavier block or masonry types and still provide the highly important practical features of **Rigidity—Light Weight—Fire Safety—High Resistance to Penetration of Sound through Partitions** and **No Breaking of the Waterproofing Seal on Furred Exterior Walls.**

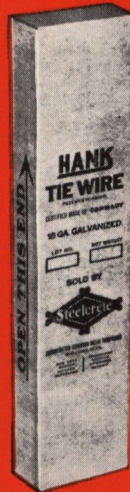
...These units—erected and plastered—form the **BAR-Z-SYSTEM**



Bar-Z-Stud



Bar-Z-Shoe



Tie Wire



Bar-Z-Track



Cross Clip



Rawl Drive



Bar-X-Lath

BAR-Z-STUD

Bar-Z-Studs are 16-gauge cold formed steel channels having alternately opposed triangular openings in the web to form a truss-like member. These studs are made in lengths up to 20 feet. Floor and ceiling tracks are of similar design but slightly wider. 2, 3, 3½ and 4 in. tracks are furnished in lengths of 10 ft. Tracks for 6½ in. studs are furnished in lengths of 16 ft. All Bar-Z-Studs and Track are furnished painted black.

The following table shows stud widths, weights and recommends spacing for given heights, when used with Bar-X-Lath. Heights greater than 20 ft. require splicing in field.

Stud Width Overall	Weight per Thousand lineal feet Stud-or-Track	Finished Plastered Wall Thickness	Permissible Heights for Indicated Spacing		
			24 in. o.c.	19 in. o.c.	16 in. o.c.
2 inches	409 lbs.	3½ inches	10 feet	15 feet	18 feet
3 inches	470 lbs.	4½ inches	12 feet	17 feet	20 feet
3½ inches	494 lbs.	4¾ inches	13 feet	18 feet	21 feet
4 inches	660 lbs.	5½ inches	16 feet	20 feet	22 feet
6½ inches	850 lbs.	7½ inches	20 feet	24 feet	26 feet

*Note: 3 in. Stud made on special order only.

BAR-Z-SHOES

Bar-Z-Shoes are used to attach the studs to the floor and ceiling tracks. Four shoes required for each stud.

Top and bottom shoes for 2, 3, 3½ and 4 in. studs are interchangeable, are 5 in. long and weigh 72 lbs. per thousand pieces. For 6½ in. studs top shoes are 12 in. long, bottom shoes 4½ in. long and weigh 356 lbs. and 147 lbs. per thousand pieces respectively. Cost of shoes included in price of studs.

TIE WIRE

Tie wire for attaching the shoes, grounds, lath and other units to the studs is 18-gauge Cop-R-Loy zinc coated Certified Steelcrete Quality. It is packed in cartons weighing approximately 25 lbs.

TRACK FASTENINGS

Cross Clips, spaced approximately 4 ft. o.c. and both sides of each opening, are recommended for fastening tracks to concrete or masonry floors or ceilings with 1¼x¾ in. "Rawl-Drives" or lead shield and anchor nails. When "Rawl-Drives" are used a ¾ in. hole is drilled in the concrete, on center line of track, and the "Rawl-Drives" driven through the hole in the Cross Clip and into the concrete like a nail. Cross clips fit "snug" inside the track and can be made on the job or purchased from us. This method insures alignment and prevents shifting or loosening of track during construction prior to plastering.

BAR-X-LATH

Bar-X-Lath consists of Steelcrete Diamond Expanded Metal Lath to each sheet of which 4 pairs of No. 11 rods, spaced on 7-in. centers are welded. The rods forming each pair are welded to each other through the meshes of the lath longitudinally of the sheet—thus forming an extremely rigid sheet which acts as a cross bridging between studs. Bar-X-Lath is furnished weighing 3.4, 4.2 or 4.6 lbs. per sq. yd. The 3.4 lb. is generally used for most types of construction. The 4.2 and 4.6 lb. are recommended for severe or unusual conditions.

Bar-X-Lath is especially designed for use on 24 in. spacing of studs and for reasons of economy this spacing should be adhered to whenever heights as noted in above table will permit.

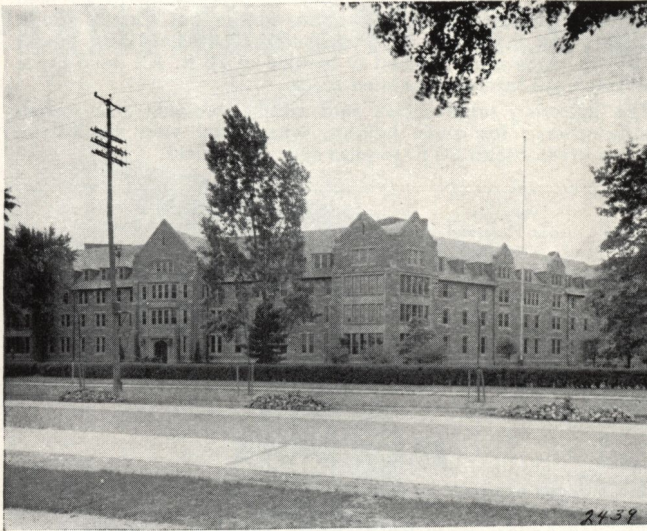
For Partition Work, Bar-Z-Studs are sold only with Bar-X-Lath.

ERECTION

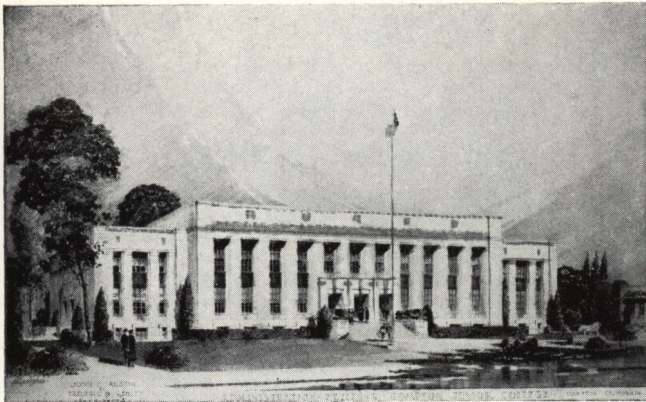
These stock units are usually erected on the job by metal lathers who are skilled in this type of work with the result that the erection proceeds more rapidly than other types of partition construction. Furthermore, since lathing mechanics are usually employed on most jobs for metal lath ceiling construction and the placing of corner beads, metal grounds and metal lath furring, all work in these lines can properly be combined in one contract and proceed, to the benefit of the job, under one supervision and responsibility.

Complete stocks carried in Branch Warehouses and Mill.

A few who have used **BAR-Z-SYSTEM**



Home for Incurables, Philadelphia, Pa.
Architect—Ballinger Company, Philadelphia



Administration Building, Compton Junior College, Compton, Calif.
Architects—John C. Austin, F.A.I.A. and Fredric M. Ashley, A.I.A.,
Los Angeles, Calif.

ONE of the best methods of judging the merits of any product is to carefully examine a list of the users and the structures in which the product has been installed. We are proud to offer the reader a partial list below because it indicates, as can no other evidence, the unquestionable satisfaction which the Bar-Z-System of Partition Construction has given since 1930 in all types of buildings in all sections of the United States.

NEW ENGLAND

Worcester City Hospital
Worcester, Mass.
Architects—
Stevens, Curtin & Mason
Boston, Mass.

Hale Hospital
Haverhill, Mass.
Arch's.—Coolidge, Shepley,
Bulfinch & Abbott
Boston, Mass.

State Prison Dormitories
Norfolk, Mass.
Arch's.—McLaughlin & Burr
Boston, Mass.

Monastery of St. Clare
Jamaica Plain, Mass.
Arch.—John A. McPherson
Boston, Mass.

Economy Grocery Stores Corp.
General Office Building
South Boston, Mass.
Arch.—Isidor Richmond
Boston, Mass.

Ethel Walker School for Girls
Simsbury, Conn.
Arch.—Milton E. Hayman
Hartford, Conn.

East Hartford Town Hall
East Hartford, Conn.
Arch's.—Ebbets & Frid
Hartford, Conn.

Underwood Elliot Fisher Co.
Hartford, Conn.
Engineers—Lockwood, Greene
New York, N. Y.

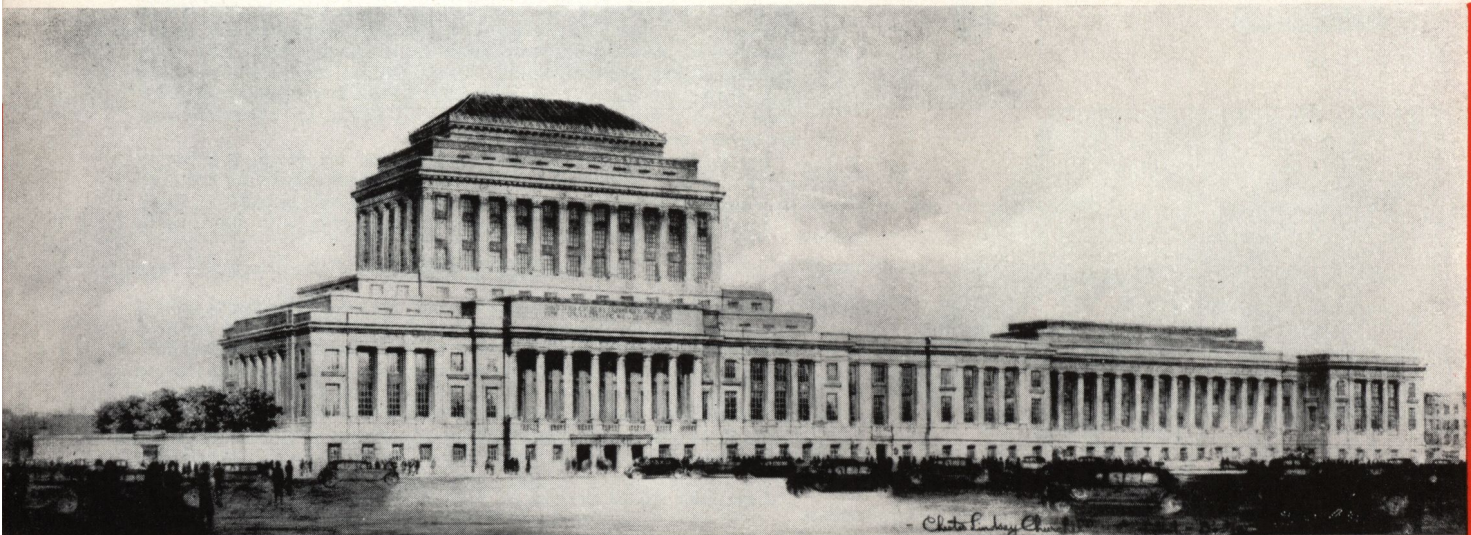
Nurses Home
Hartford Retreat
Hartford, Conn.
Arch.—Donald F. Hiscox
Hartford, Conn.

Almshouse & Jail
Merrimac County
Boscawan, N. H.
Arch.—Harry G. Forrest
Concord, N. H.

Morse Memorial School
Brooks, Maine
Arch's.—Pulsifer & Eye
Lewiston, Me.

Female Ward Building
State Hospital
Waterbury, Vt.
Arch.—Frank Lyman Austin
Burlington, Vt.

Burrilville High School
Burrilville, R. I.
Architects—
Jackson, Robertson & Adams
Providence, R. I.



Christian Science Publishing Society, Boston, Mass. Architect—Chester Lindsay Churchill, A.I.A., Boston

PARTITIONS



MIDDLE ATLANTIC

Palisades N. Y. Grade School
Palisades, N. Y.
Arch.—Lawrence Licht

City Hospital
Lockport, N. Y.
Arch.—Will Alban Cannon
Niagara Falls, N. Y.

North High School
Binghamton, N. Y.
Arch.—Lester J. Kaley
Binghamton, N. Y.

Bayonne High School
Bayonne, N. J.
Arch.—Fanning & Shaw
Paterson, N. J.

Marine Barracks
Lake Denmark, N. J.
Arch.—U. S. Navy
Washington, D. C.

Temple University
Philadelphia, Pa.
Arch.—A. W. Lee Company
Philadelphia, Pa.

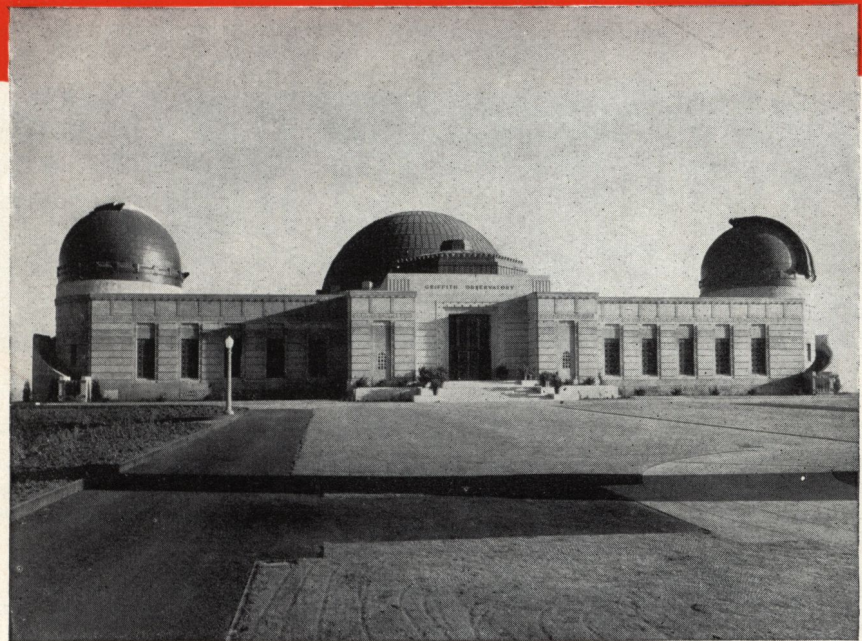
Liberal Arts Building
Library Building
F & M College, Lancaster, Pa.
Arch.—W. H. Lee
Philadelphia, Pa.

Home for Aged Friends
West Chester, Pa.
Arch's.—Heacock & Hokanson
Philadelphia, Pa.

St. Luke's Hospital
Bethlehem, Pa.
Arch's.—Lovelace & Spillman
Bethlehem, Pa.

Girl's Dormitory Building
State College, Pa.
Arch.—Charles Z. Klauder
Philadelphia, Pa.

Board of Education Office
Building
Pittsburgh, Pa.
Arch.—M. M. Steen
Pittsburgh, Pa.



Griffith Observatory, Los Angeles, Calif.
Architects—John C. Austin, F.A.I.A. and Fredric M. Ashley, A.I.A., Los Angeles, Calif.

SOUTHERN

Officers Apartments (14)
Quantico, Va.
Arch.—U. S. Navy
Washington, D. C.

Veterans Administration Facility
Hampton, Va.
Arch.—Veterans Administration
Washington, D. C.

Dormitory Buildings
West Virginia University
Morgantown, W. Va.
Arch's.—Warne Tucker & Selling
Charleston, W. Va.

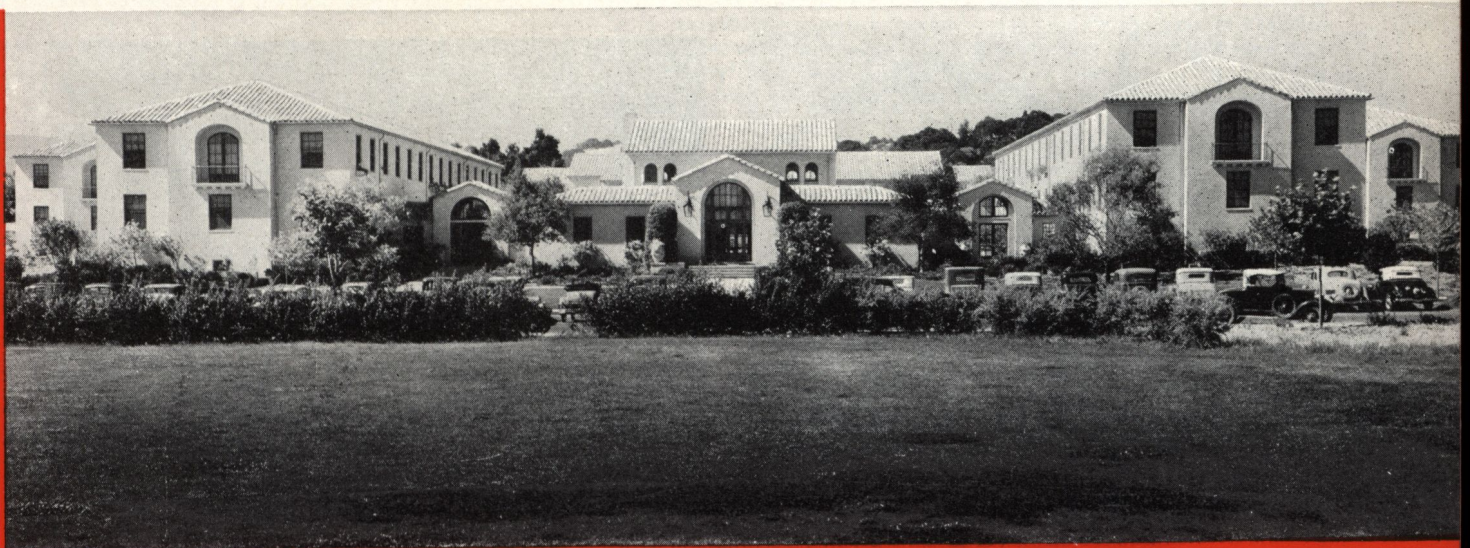
Denmar Sanatorium
Denmar, W. Va.
Arch.—J. C. Burchinal
Wheeling, W. Va.

Myrtle Apartments
Charlotte, N. C.
Arch.—C. W. Connelly
Charlotte, N. C.

John F. Seagle Building
University of Florida
Arch.—Rudolph Weaver,
State Arch.
Gainesville, Fla.

Veterans Administration Facility
Johnson City, Tenn.
Arch.—Veterans Administration
Washington, D. C.

Veterans Administration Facility
Biloxi, Miss.
Arch.—Veterans Administration
Washington, D. C.



Lagunita Court, Stanford University, Palo Alto, Calif. Architect—Bakewell and Brown, San Francisco, Calif.



Sonoma County Hospital, Santa Rosa, Calif. Architect—John I. Easterly, Santa Rosa, Calif.

Naval Air Station
Pensacola, Fla.
Arch.—U. S. Navy
Washington, D. C.
New Savannah High School
Savannah, Ga.
Arch's.—Levy & Clark;
Cletys W. Bergen
Savannah, Ga.

Fulton County High School
Hapeville, Ga.
Arch's.—Hentz, Adler & Shutze
Atlanta, Ga.
Oak Grove Apartments
Dallas, Texas
Arch's.—Fooshee & Cheek
Dallas, Texas

River Oaks Community Center
Houston, Texas
Architects—
Stayton Nunn & Milton McGinty
Houston, Texas

Humble Oil Refining Co. Office
Building
Baytown, Texas
Architects—
Stayton Nunn & Milton McGinty
Houston, Texas

NORTH CENTRAL

Franklin County Hospital
Columbus, Ohio
Arch.—W. H. Tremaine
Columbus, Ohio
Glenville Hospital
Cleveland, Ohio
Arch.—Geo. S. Rider Co.
Cleveland, Ohio
Veterans Administration Facility
Marion, Ind.
Arch.—Veterans Administration
Washington, D. C.

Lamphier High School
Springfield, Ill.
Arch.—Carl T. Meyer
Springfield, Ill.
Feitshams School
Springfield, Ill.
Arch's.—Helmie & Helmie
Springfield, Ill.
Veterans Administration Facility
Danville, Ill.
Arch.—Veterans Administration
Washington, D. C.

Brown County Mental Hospital
Green Bay, Wis.
Arch.—Foeller, Schober &
Berners
Green Bay, Wis.
Federal Prison
Sandstone, Minn.
Supervising Arch.—Treasury
Dept., Washington, D. C.

Rockhurst College
Kansas City, Mo.
Arch.—Carroll & Dean
Kansas City, Mo.
Senior High School
Stevens Point, Wis.
Arch.—Law, Law & Potter
Madison, Wis.

WESTERN

Training School
American Fork, Utah
Arch.—Scott & Welch
Salt Lake City, Utah
Dee Memorial Hospital
Ogden, Utah
Arch's.—Young & Hansen
Salt Lake City, Utah

Whipple Barracks
Whipple, Arizona
Arch.—Veterans Administration
Washington, D. C.

San Diego Post Office
San Diego, Calif.
Arch.—Wm. Templeton Johnson
San Diego, Calif.

Polytechnic High School
Los Angeles, Calif.
Arch.—A. C. Martin
Los Angeles, Calif.

Inglewood High School
Inglewood, Calif.
Arch.—T. C. Kistner
Los Angeles, Calif.

Santa Monica High School
Santa Monica, Calif.
Arch.—Marsh, Smith and Powell
Los Angeles, Calif.

Golden Gate Bridge Toll Plaza
San Francisco, Calif.
Arch.—Morrow & Morrow
Palomar Observatory
Palomar Mountain,
Palomar, Calif.
Arch. & Eng.—California In-
stitute of Technology
Pasadena, Calif.

St. Mary's Hospital
Long Beach, Calif.
Arch.—I. E. Loveless
Long Beach, Calif.

State Highway Office Building
Sacramento, Calif.
Arch.—State of California

Hospital, Barracks & Post
Exchange Building
Ben Ali, Calif.
Arch.—United States Army
Construction Quartermaster



Huron Road Hospital, East Cleveland, Ohio
Engineer—Geo. S. Rider Co., Cleveland, Ohio



Jeremiah E. Burke High School for Girls, Boston, Mass.
Architect—George Ernest Robinson, Boston

Seven REASONS FOR USING BAR-Z-PARTITIONS

SUCH widespread use of the Bar-Z-Partition as is evidenced by the list of users on the preceding pages can only be accounted for by the merits and advantages of the System. Repeated use by prominent architects means complete satisfaction and it is worth noting that these installations are in all types of structures. Below we present some of the reasons for this popularity of the Bar-Z-Partition.

(1) ADAPTABILITY

With the ever-increasing use of air conditioning, electrical appliances and other conveniences provision for supply ducts, pipes, wires, cables and conduits without objectionable projections into rooms or corridors presents a serious problem. In hospitals, schools and office buildings the question of how to conceal these necessary accessories is doubly important.

PIPES AND CONDUITS

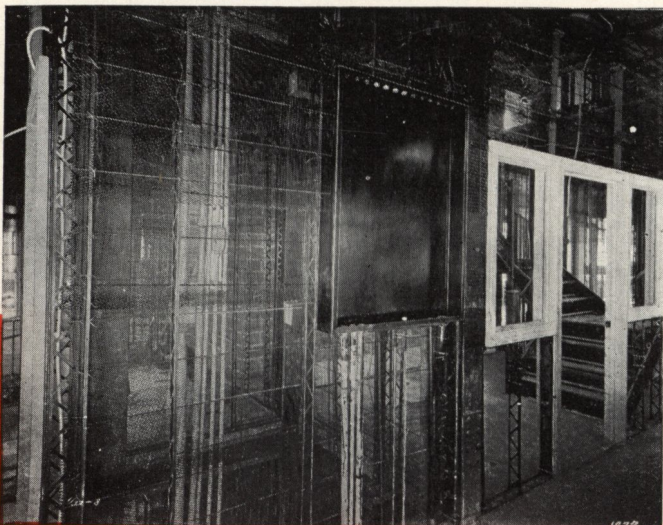
The accompanying illustrations show how the Bar-Z-Partition provides for the passage of normal sizes of pipe and conduits through the openings in the studs. They may be run vertically, horizontally or inclined; there are no chases to cut when Bar-Z-Partitions are used.

WIRES, CABLES AND OUTLETS

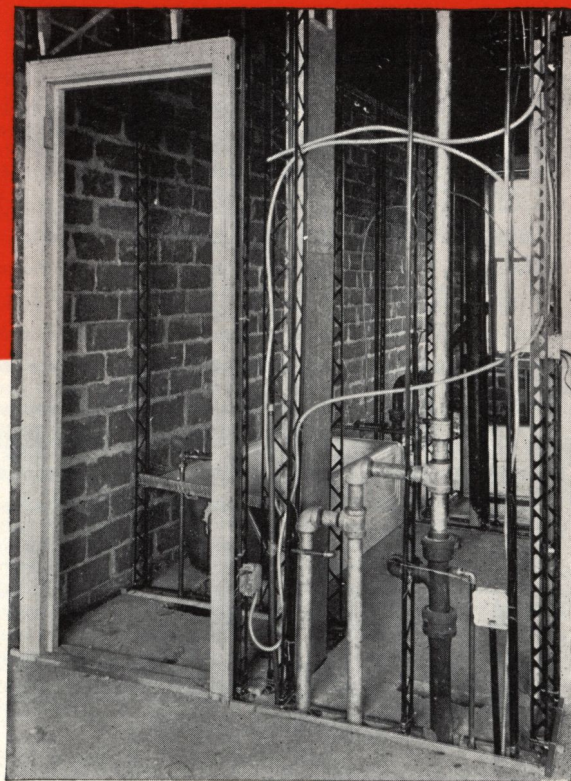
Wires and cables for electrical, telephone or other purposes may be run through the triangular openings of the stud and, where they run into the floor or ceiling, they can pass through these openings in the tracks. Installation of outlet boxes may be made in practically any location as shown in the drawing on page 16. Junction and fuse boxes are readily provided for and a typical method of framing is detailed on Page 16.

DUCTS AND VENT PIPES

Concealing ventilating and air conditioning ducts is necessary in practically every type of structure and is readily accomplished in a Bar-Z-Partition. In schools and hospitals chemical laboratory fume ducts can be carried in the partitions and completely concealed. In such cases, care should be taken that adequate dampers be provided to conform to fire and safety regulations.



Fuse Boxes and Panel Boards Readily Fit into a Bar-Z-Partition



Showing Ease of Installation of Piping and Wiring in a Bar-Z-Partition

(2) FIRE AND IMPACT RESISTANCE

Bar-Z-Non-Bearing Steel Stud Partitions afford one hour or more fire rating depending on the type of plaster used.

These partitions are constructed entirely of non-combustible materials—steel studs, Bar-X-Lath, metal grounds and plaster; so there is nothing in them to burn or transmit flames from one part of a structure to another. Practical experience in actual construction since 1930 has led to the development of such accessories as the metal grounds which are shown in the details on Page 17. These grounds can have a full thickness of plaster between flanges thus eliminating any open space back of wood chair rail, base or mouldings which might conduct heated air or flame if the trim should be burned off in a fire.

An extensive series of tests on Bar-Z-Partitions was conducted at the Bureau of Standards in Washington in 1934. These tests included different thickness of partitions and also fire-and-water tests to determine the resistance of the partition to a powerful stream of water after exposure to a specified fire temperature and time period. Bar-Z-Partitions passed both of these tests for fire safe construction with a one hour rating using sanded gypsum plaster.

A description of these tests is contained in "Report on Fire Tests of Six Hollow Partitions framed with Metal Studs and faced with Gypsum Plaster on Metal Lath—Test No. T.B. 362-21, F.R. 451." Copies can be obtained from the Bureau or the District Offices of the Company.

Building Departments in practically all large cities have approved the Bar-Z-Partition and, as noted on preceding pages, it has been extensively used in hospitals, schools and many other types of buildings.

In connection with the actual resistance of this partition to fire it should be remembered that the Bar-Z-Partition is a complete, strong and resistant unit. For this reason impact at any point on the partition is absorbed by the entire structure of the partition. This characteristic is important in its relation to fire resistance of a partition since under fire conditions, impact, from explosion, falling debris or a fire stream is common. An important use is now made of Bar-Z-Partitions in power houses to form the cells or rooms containing transformers which occasionally "blow-up."

(3) STRENGTH AND BRIDGING ABILITY

SINCE the Bar-Z-Partition is used only in non-bearing construction the usual interpretation of the term "strength" has little or no application. However, the form of construction of the Bar-Z-Partition—of truss-like steel studs, especially stiffened Bar-X-Lath and plaster—forms a stiff, impact-resisting wall which offers one outstanding advantage seldom, if ever, provided by the usual block or small unit type of partition. This characteristic is known as "Bridging Ability." To understand and appreciate exactly what is meant by bridging ability the reader should note the following:

A normal floor slab acts as does a beam with its weakest point in the center and its strength increasing to a maximum at its points of support. Therefore, if a partition can be so constructed that its weight can be considered as either uniformly spread or as being

carried to the ends of the partition and transferred to structural beams or girders, such a partition would offer unusual advantages. It would eliminate the necessity for providing special structural support, along the line of partition, under the floor on which the partition rests and would permit placement of the partition wherever desired without regard to such additional support.

Bar-Z-System provides such a partition. This was conclusively demonstrated in tests conducted by the Consolidated Expanded Metal Companies with the cooperation of several members of the staff of the Building Department of the Board of Education, Pittsburgh, Pa., as observers. As the result of these tests and other investigations by the Board, the Bar-Z-Partition construction has been approved for school work in the Pittsburgh territory.

THE PITTSBURGH TEST

Material Tested..... $3\frac{1}{4}$ in. stud, Bar-Z-Partition, plastered 2 coats, 2 sides, ordinary construction. 3.4 lb. Bar-X-Lath.

Partition Size.....20 ft. 0 in. x 11 ft. 6 in.

Special Conditions..Blocked up 6 in. from floor; 4-in. blocks at each end; wedged up plank between each block.

Erection Dates.....Bar-Z-Tracks, Studs (24 in. o.c.), Bar-X-Lath—Dec. 18, 1935.
Plastered 2 coats, 2 sides—Dec. 20, 1935.
Wedges removed—Dec. 27, 1935.

Result.....No deflection after removing wedges—Dec. 27, 1935.
 $\frac{1}{16}$ in. deflection after heavy traffic vibration—Dec. 30, 1935.

Conclusions.....**1.** Bar-Z-Partition bridges itself the complete width of an ordinary classroom.
2. The strong modern plaster, in conjunction with the solid ribs of the metal lath used, apparently acts as would a deep section concrete beam under similar conditions.

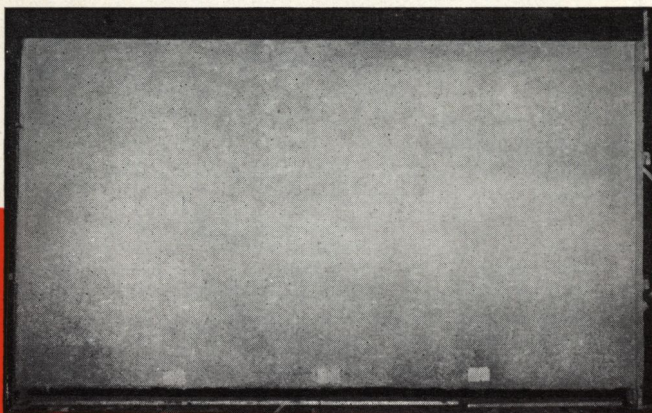
3. The weight of Bar-Z-Partitions can either be considered as uniformly spread or as being carried to the ends of the partition.

4. If, and when, live or other loads deflect the slab, the Bar-Z-Partition does not impose its load with the deflecting load—it transfers its weight to the shear sections of the ends of the supporting slab.

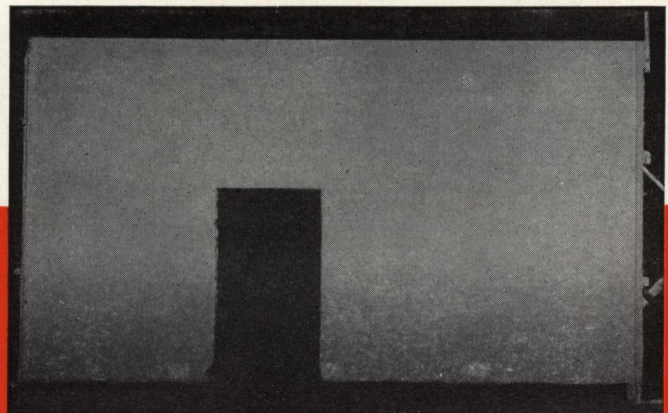
Further tests on this same partition are described on Page 12.

WHAT THIS MEANS TO THE DESIGNER AND OWNER

In many types of buildings particularly in schools and office buildings the owner and architect are constantly confronted with problems requiring the changing of partition locations. With the usual type of partition it is generally necessary to design the floor slabs extra heavy so that the partition can be placed at any point or else provide extra strength in the floor slab under the line of the partition. With the Bar-Z-Partition, due to its "bridging ability" and considering "conclusion three" above, no additional provision for dead load is necessary—with the possible exception that a nominal amount might be added to the uniform loading calculations for slabs if considerable future partition installation is anticipated. Special supports under Bar-Z-Partitions are not necessary.



Test Partition, Pittsburgh Board of Education, Pittsburgh, Pa.
Partition Supported Only on Blocks at Each End.



Test Partition, Pittsburgh Board of Education, Pittsburgh, Pa.
Doorway Cut in Partition as Described on Page 12.

COMPARATIVE COST

Bar-Z-Partitions and Bar-Z-Wall Furring of themselves, cost no more, and in many cases cost less than block or masonry types. Finished costs in different sections of the Country naturally vary with local wage scales and other factors; but the relative basic facts as noted above remain true.

ADDITIONAL SAVINGS

Additional economy or savings—both direct and contributory—are made possible when the Bar-Z-System is used—and should be given consideration—some of these factors are outlined in the following—and others will undoubtedly occur to the reader in connection with specific projects.

NO CHASE CUTTING OR PATCHING EXTRAS

The elimination of these items of "extra expense" is of considerable moment; for, as is well known, they are seldom, if ever, "carried" in the original estimate for block partition, and usually "bob up" as the job proceeds to make a surprisingly large total of "Extras" which, had they been known in advance, might have eliminated block partitions from consideration by reason of this extra cost. This is particularly true in the case of hospitals, hotels, dormitories, schools and office buildings—where, for convenience and space-saving, large amounts of electrical, plumbing, heating and ventilating work must be concealed within the partition walls. Reference to the illustrations on page 7 and the construction details on the following pages will indicate the practicability of the Bar-Z-System for concealing such work **at no extra cost.**

MECHANICAL TRADES SAVINGS

The Bar-Z-System makes possible substantial savings in the co-operating mechanical trades—such as electrical, plumbing, heating, ventilating and air-conditioning. These trades can lay out their "roughing in" along the previously marked lines of the partition and can work in their risers and runs either before or after the studs are erected. The openings in the studs form excellent paths for horizontal runs of piping or conduit, and greatly facilitate installation. Hangers or supports of heavy fixtures as shown on page 16, detail No. 27 are attached before lathing.

Thus the work of all trades can proceed practically in unison with less than usual "back-tracking" or delay. The net result being more rapid completion of the work as a whole—which is important where time is a factor.

SAVINGS DUE TO LIGHT WEIGHT AND "BRIDGING ABILITY"

These two features of the Bar-Z-System, not found in block type partitions, combine to effect economies in the structural elements of a building insofar as they permit of lighter floor construction

with consequent less dead load to be transmitted to beams, girders, columns and footings.

When these factors are considered and allowed for in the structural design, savings of considerable magnitude are possible, particularly in multi-story buildings for light occupancy, where large amounts of partition are necessary . . . as for instance in hotels, office buildings, apartments, etc. Extra heavy floors are not required to take care of possible re-location of Bar-Z-Partitions.

For alteration work in old buildings these features are doubly important, since the construction used in many old buildings will not permit the use of a masonry type of partition because of the extra weight which would be imposed on the old floors.

Bar-Z-Partitions plastered to a normal thickness of $\frac{3}{4}$ " over the stud, on two sides weighs from 18 to 20 pounds per square foot of surface, depending on the size and spacing of studs. Compared to the common types of block partitions of equal thickness, savings in dead weight ranging from zero up to 20 or more pounds per square foot of surface are shown.

In computing the comparable total weights of partitions in a building, the designer should remember that where suspended ceilings are used, the Bar-Z-System usually affords a considerable margin of weight saving, due to the fact that **Bar-Z-Partitions attach directly to the suspended ceiling and stop at that point**, whereas the block partition must usually extend full height to the structural slab above the ceiling in order to meet the requirements for lateral support.

The Bar-Z-System saves useless weight and cost above the suspended ceiling line.

SPACE SAVING

Generally a thinner Bar-Z-Partition may be used for a specified ceiling height than a masonry partition. As noted above, this is particularly true when a suspended ceiling is used since a block partition must be carried to the underside of the floor slab above the ceiling and as the height increases, thicker and heavier blocks must be used.

At maximum usable heights a $3\frac{1}{4}$ " stud can be used for the same height of partition as a 6 in. tile, with a saving of $2\frac{3}{4}$ inches per lineal foot; likewise a 4 inch stud can be used for 8 inch tile or a saving of 4 inches per lineal foot. The respective savings here per 100 lineal feet of partition are 275 and 400 cu. ft. for a 12 ft. room height and 23 and 33 sq. ft. of floor space.

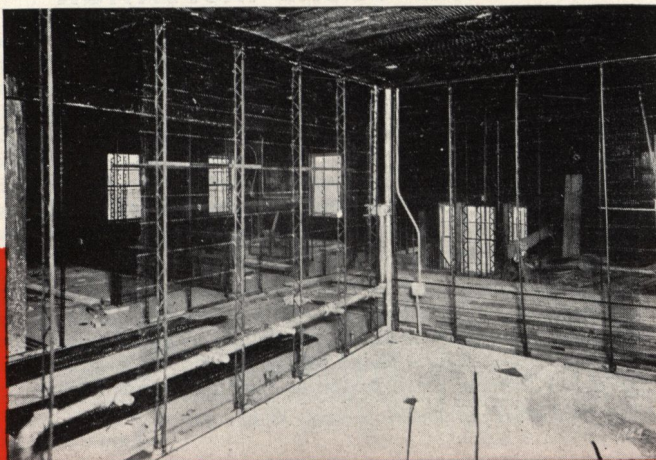
MISCELLANEOUS ECONOMIES

In addition to the above, there are other items which have an effect on the total saving resulting from the use of the Bar-Z-Partition. For example:

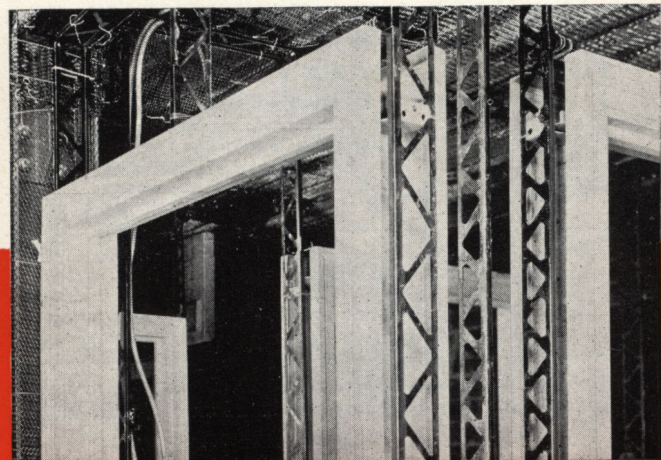
Freight, trucking, handling and loss by breakage are lessened with this form of construction.

A relatively small amount of space is required for the storage of materials on the job.

In many locations a substantial saving is made by the reduction in the costs of cleaning up debris.



Illustrating concealment of Horizontal and vertical pipe runs—"No chase cutting or patching extras."



Illustrating use of stud anchor for combination metal bucks and trim, see page 15 for details.

THE well expressed thought of Dr. Vern O. Knudsen in his book "Architectural Acoustics," that "Freedom from the harassing effects of noise is one of the finest qualities a building can possess," should be accepted as one of the desired objectives of Architectural Designers.

This ideal is attainable in most structures to a satisfactory degree provided the designer will give the same amount of consideration to the conditions and elements which will affect the acoustics of a structure, as he does to those of structural and utilitarian character.

However, a proper evaluation of all the factors bearing on the attainment of the ideal is necessary and worthy of more than mere lay judgment. It is a proper subject for careful study and recommendation by unbiased and competent counsel. The designer who has not the necessary qualifications himself will, in our opinion, avoid much disappointment and needless expense by employing a professional Acoustical Engineer to advise him—even in the early stages of design.

In the following paragraphs we shall confine ourselves to the subject of partitions; comment briefly on other elements affecting their sound insulating properties, and present authoritative data regarding the sound insulating values of Bar-Z-Partitions, block type partitions, doors and windows. Tables showing recorded intensity levels of commonly recognized noises are included for the information of the reader.

Physically, partition walls and wall furring are an important part of most buildings. However, their importance and particularly their degree of efficiency as sound insulators is in most instances limited by the efficiency of other elements in the same structure, such as doors, windows, ducts, etc. These latter elements generally are far less efficient as insulators than the walls which they serve; furthermore, duct openings and even the usual small cracks around doors and windows are excellent "transmitters" of sound—thus, the presence of these elements and conditions frequently serve to materially reduce the effectiveness of an otherwise efficient wall.

It is essential, in the consideration of partitions that the designer have in mind a clear concept of the difference between "Sound Insulation" and "Sound Absorption." It can be generally stated that most good sound insulating mediums are poor sound absorbing mediums, and vice versa. To obtain both sound insulation and sound absorption, the absorbing material must be exposed to the source of sound; usually by placing it on the surface of the sound insulating medium.

For every type of structure there are present both inside and out, certain characteristic noises of varying intensity and frequency, depending on the type of occupancy and location. It is therefore essential that these conditions be definitely known, either through original investigation or from such published data as may be available and applicable.

LABORATORY AND FIELD TESTS BAR-Z-PARTITION

Bar-Z-Partitions as indicated by both laboratory and field tests conducted by Dr. William R. Barss, Acoustical Engineer and Consulting Physicist, of Cambridge, Mass., are efficient insulators against the transmission of air-borne sound.

Table I shows the transmission reduction factors in decibels at standard frequencies as obtained in laboratory tests. Subsequent field tests by Dr. Barss have confirmed these findings.

TABLE I
Sound Reduction Factors—Bar-Z-Partition

Stud Size and Spacing	Weight in Lb. per Sq. Ft.	Reduction Factors in Decibels for Standard Frequencies				
		128	256	512	1024	2048
2" 24"-o.c.	17.9	25.6	33.3	35.3	35.7	38.8
3 1/4" 24"-o.c.	19.1	23.8	34.1	39.1	42.5	38.6
4" 24"-o.c.	18.3	24.7	33.5	38.0	42.1	38.2
6 1/8" 24"-o.c.	20.4	27.9	35.0	38.1	46.2	41.3
4" 16"-o.c.	19.1	29.2	36.9	38.9	44.2	43.4

All test panels were lathed with 3.4 lb. Bar-X-Lath and were plastered to a thickness of 3/4" over the stud on each side using a

standard brand of ready-sanded gypsum plaster for the scratch and brown coats, and a common white coat for finish. The lathing and plastering was done by Union journeymen mechanics regularly employed in their respective trades.

Considering the results indicated in Table I from a practical viewpoint, the use of 2", 3 1/4", 4" or 6 1/8" Stud will not materially affect the transmission reduction value of Bar-Z-Partitions. Therefore the decision as to size of stud to use can be governed solely on the basis of utility, cost and structural factors involved in any specific project. The results shown indicate that where extreme heights require a closer stud spacing for structural reasons this can be safely done without detriment to the sound insulating qualities of Bar-Z-Partitions. Obviously, the 24" spacing of studs, wherever possible, should be adhered to for reasons of economy.

Bar-Z-Partitions, due to the combination of the diagonal truss-braced stud and the strong bridging effect of the solid ribs in Bar-X-Lath, forms an extremely rigid structure with a relatively high stiffness co-efficient, which tends to prevent drum heading action in the partition; and consequently builds up its resistance to sound transmission. These facts are undoubtedly largely responsible for the excellent results indicated by Dr. Barss' tests.

Cement Plastered Bar-Z-Partitions tested in the field by Dr. Barss showed about 1 Db. average increase for reduction factors as compared with similar construction with the same thickness of gypsum plaster. Additional tests on Bar-Z-Partitions with space between lath filled with mineral wool bats and cement plastered, show a further average increase in reduction factor of about 2 Db. as compared with unfilled partitions. From the viewpoint of Sound Insulation, this small increase would not justify the cost of mineral wool filling. However, for heat insulation it would be effective and probably would warrant the expense.

INCREASED SOUND INSULATION

Where greater sound insulation is required, a further increase in reduction factors may be obtained by constructing a partition consisting of two unbridged walls on separate lines of studs (see detail No. 26, page No. 16). The separation between lines of studs may be as little as one inch. Tests recorded by Dr. Paul E. Sabine in his book, "Acoustics and Architecture," indicate a reduction factor of 49.5 Db. for similar construction. Comparison with Table I indicates that increases in reduction factors ranging from 11 Db. to 15 Db. average may be expected for a double stud wall as compared with a single stud wall.

For comparative purposes, Table II on following page is taken from the book "Architectural Acoustics" by Dr. Vern O. Knudsen. These tests are credited to Dr. Paul E. Sabine. These data indicate that Bar-Z-Partitions have sound insulating value at least equal to clay tile or gypsum block partitions having the same or greater weights per square foot.

TABLE II
Sound Reduction by Elock Type Partition

Description of Panel	Weight in Lb. per Square Foot	Reduction Factors in db For Standard Frequencies				
		128	256	512	1024	2048
Tile, hollow clay, 4", unplastered	17	24.5	24.1	26.1	35.5	29.8
Tile, like above, 1/2" plaster...	22	25.1	24.3	26.9	38.2	33.9
Tile, like above, 1" plaster....	27	27.3	26.9	30.3	39.8	39.8
Tile, like above, 1 1/4" plaster..	28.8	28.0	27.4	31.9	40.4	40.2
Tile, hollow gypsum, 3", unplastered	11.1	19.2	18.7	20.8	28.5	30.0
Tile, solid gypsum, 2", unplastered	10.4	18.1	18.1	20.4	25.3	27.9
Tile, like above, 1/2" plaster...	15.0	21.9	21.0	24.6	30.8	33.7
Tile, like above, 1" plaster....	19.6	22.9	23.8	27.5	36.9	37.6
Tile, like above, 1 1/4" plaster...	21.4	22.9	24.2	27.6	37.6	38.2
Tile, solid gypsum, 3", unplastered	14.2	19.4	19.0	21.9	33.5	35.4
Tile, like above, 1 1/4" plaster..	25.4	24.5	26.0	31.2	39.8	40.2

Previous reference has been made to doors and windows. We therefore quote from "Acoustics And Architecture" by Dr. Paul E. Sabine the data as shown by Table III & IV.

TABLE III
Sound Reduction by Doors and Windows

Number	Description	Average reduction, decibels
1	1/4-in. steel door.....	34.7
2	Refrigerator door, 5 1/2-in. yellow pine filled with cork	29.4
3	Solid oak, 1 3/4 in. thick.....	25.0
4	Hollow flush door, 1 3/4 in. thick.....	26.8
5	No. 4, as normally hung.....	24.1
6	No. 4, with 2 layers of 1/2-in. Celotex in hollow space	26.8
7	No. 4 with 1-in. balsam wool in hollow space....	26.6
8	Light-veneer paneled door.....	21.8
9	Two-veneer paneled doors, with 2-in separation, normally hung in single casement.....	30.0
10	Window single pane 79x30 in. 1/4-in. plate glass	26.2
11	Window, 4 panes each 15x39 in. 1/4-in. plate glass	29.2
12	Window, 2 panes each 31x39 in. 3/16 in. plate glass	22.8
13	Same as 12, but double glazed, glass set in putty both sides, 1-in. separation.....	26.6
14	Same as 13, but with glass set in felt.....	28.9
15	Diamond-shape leaded panes, 3/16-in. glass....	28.4
16	Window, 12 panes 10x19 in., 1/8-in. glass.....	24.7

TABLE IV
Reduction by Sound-proof Doors*

Material	Thickness, inches	Weight per square foot, pounds	Average reduction, decibels
Wood	2 5/8	6.85	30.2
Wood	2 7/8	7.00	30.7
Wood	3	7.65	31.5
Wood, steel sheathed.....	3	9.6	33.0
Wood, steel sheets, inclosed.....	3	11.6	35.6
Wood, lead sheets, inclosed.....	3	15.3	37.3

* These data are published with the kind permission of Mr. Irving Hamlin of Evanston, Illinois, and of the Compound and Pyrono Door Company of St. Joseph, Michigan, for whom these tests were made.

In order that the reader may obtain a reasonable idea of noise levels due to various sources under various conditions, Tables V and VI are reproduced from "Architectural Acoustics" by Dr. Vern O. Knudsen.

TABLE V

NOISE IN BUILDINGS			
FROM JOINT D. & R. SUBCOMMITTEE SURVEY—NEW YORK DATA	NOISE LEVEL	DATA FROM OTHER SOURCES	SOURCE
	100		
SUBWAY—LOCAL STATION WITH EXPRESS PASSING	95	BOILER FACTORY	1
	90		
	85	SOME FACTORIES ARE AS HIGH AS THIS	2
	80	VERY LOUD RADIO MUSIC IN HOME	4
	75		
NOISIEST NON-RESIDENTIAL BUILDING LOCATION MEASURED	70	STENOGRAPHIC ROOM	3
AVERAGE OF 6 FACTORY LOCATIONS	65	VERY NOISY RESTAURANT	4
	60		
INFORMATION BOOTH IN LARGE RAILWAY STATION	55	NOISY OFFICE OR DEPARTMENT STORE	1
AVERAGE NON-RESIDENTIAL LOCATION	50	MODERATE RESTAURANT CLATTER	4
	45	FEW PLACES WHERE PEOPLE WORK ARE BELOW THIS	2
NOISIEST RESIDENCE MEASURED	40	AVERAGE OFFICE	1
	35	VERY QUIET RADIO IN HOME	4
	30	QUIET OFFICE	1
QUIETEST NON-RESIDENTIAL LOCATION MEASURED	25	SOFT RADIO MUSIC IN APARTMENT	3
AVERAGE RESIDENCE	20		
	15	COUNTRY RESIDENCE	1
	10	COUNTY COURT, CHICAGO, ROOM EMPTY, WINDOWS CLOSED	2
QUIETEST RESIDENCE MEASURED	5	QUIET GARDEN, LONDON	4

SOURCES: 1. H. Fletcher, "Speech and Hearing," P. 187. Marginal Audibility method with 3A audiometer and offset receiver; 17 DB added as approximate figure to convert to noise level.
2. D. A. Laird, Scientific American, Dec. 1928, P. 509. Balance method with 3A audiometer and receiver with flat cap. Approximately equal to noise level.
3. W. Waterfall, Engineering News Record, Jan. 10, 1927, P. 60. Same method as (2) above.
4. A. H. Davis, Nature, Jan. 11, 1930, P. 48. Balance or marginal audibility method with 640-cycle tuning-fork. Figures given in terms of sensation level, estimated equal to noise level.

Noise levels in buildings. (Tucker.)

TABLE VI

NOISE LEVELS OUT OF DOORS DUE TO VARIOUS NOISE SOURCES				
SURVEY OF NEW YORK CITY NOISE ABATEMENT COMMISSION		OTHER SURVEYS		
DISTANCE FROM SOURCE	SOURCE OR DESCRIPTION OF NOISE	NOISE LEVEL	SOURCE OR DESCRIPTION OF NOISE	SURVEY NO.
FEET		DB		
		-130	THRESHOLD OF PAINFUL SOUND	4
2	HAMMER BLOWS ON STEEL PLATE—SOUND ALMOST PAINFUL (INDOOR TEST)	-120	(AIRPLANE, MOTOR 1600 R.P.M.; 18 FT. FROM PROPELLER AERO ENGINE UNSILENCED—10 FT	5
		-110		4
35	RIVETER	-100		
15-20	ELEVATED ELECTRIC TRAIN ON OPEN STRUCTURE	-90	PNEUMATIC DRILL—10 FT. NOISIEST SPOT AT NIAGARA FALLS	4
15-75	VERY HEAVY STREET TRAFFIC WITH ELEVATED LINE	-80	HEAVY TRAFFIC WITH ELEVATED LINE, CHICAGO	7
15-50	AVERAGE MOTOR TRUCK	-70	VERY NOISY STREET N. Y. OR CHICAGO	1
15-75	BUSY STREET TRAFFIC	-60	VERY BUSY TRAFFIC, LONDON	4
15-50	AVERAGE AUTOMOBILE	-50	(AVERAGE SHOPPING ST. CHICAGO BUSY TRAFFIC, LONDON	6
3	ORDINARY CONVERSATION	-40	QUIET AUTOMOBILE, LONDON	4
15-300	RATHER QUIET RESIDENTIAL STREET, AFTERNOON	-30	QUIET ST. BEHIND REGENT ST., LONDON	4
15-50	QUIET AUTOMOBILE MINIMUM NOISE LEVELS ON STREET	-20		
15-500	IN ENTIRE CITY	-10	QUIET ST., EVENING, NO TRAFFIC SUBURBAN LONDON	4
50-500	DAY TIME	0	QUIET GARDEN, LONDON AVERAGE WHISPER—4 FT.	4
50-500	IN MID-CITY NIGHT		QUIET WHISPER—5 FT. RUSTLE OF LEAVES IN GENTLE BREEZE	3
			THRESHOLD OF HEARING	

Noise levels in various out-of-door locations. (Galt.)

(6) EASE OF CONSTRUCTION AND ALTERATION

Ease of construction is one of the important features of the Bar-Z-Partition. The track is anchored to the floor and ceiling by clips and "Rawl-Drives" or expansion shields and nails or bolts. Where suspended ceilings are used the track is wired to the ceiling. After the tracks are properly aligned the studs are placed and plumbed and Bar-X-Lath wired to the studs. During the process of erection of the studs and the application of the lath the necessary grounds are placed as is shown by the details on pages 17-18 and 19. Such grounds and blocks are usually wired to the studs. The partition is then ready for plastering.

Door and other openings are framed by the addition of extra studs if necessary. Detail drawings showing this construction are given on Pages 14-15 and 16. The Bar-Z-Shoe makes it possible to erect a partition to meet practically any ceiling height with a minimum of cutting of studs since they permit adjustment.

In comparison with other partition materials note that all the necessary units, studs, lath, wire, etc. necessary to erect a Bar-Z-Partition 20 ft. long and 10 ft. high can be easily carried by one man.

ALTERATION

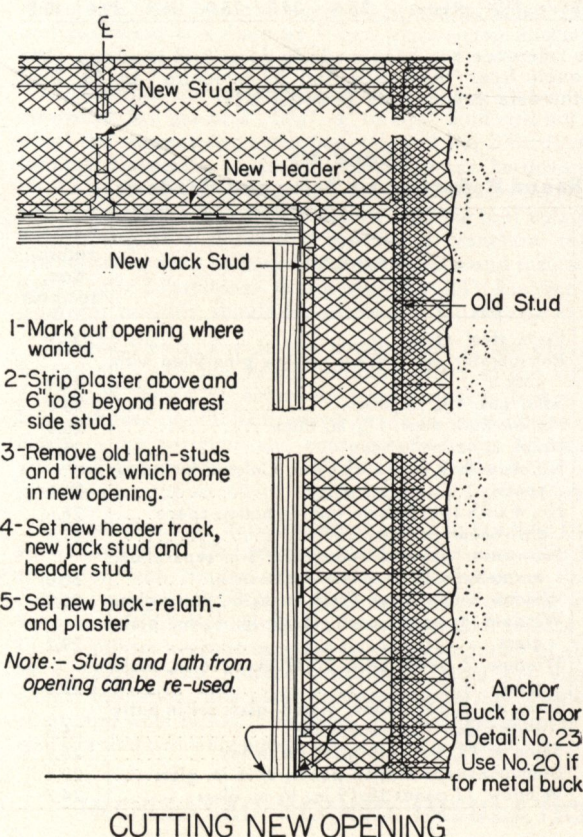
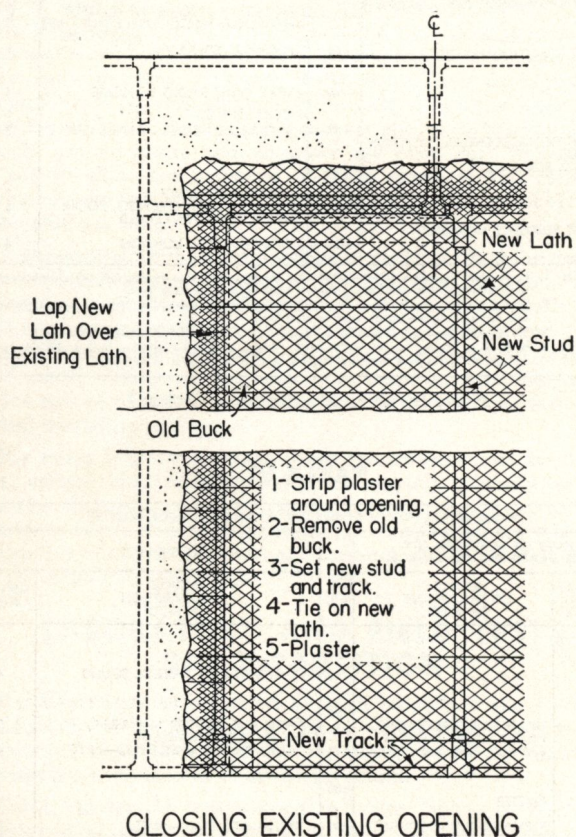
Non-bearing partitions in many types of buildings are often subject to changes in locations, opening or closing of doorways, cutting for electrical changes and other alterations. The Bar-Z-

Partition meets such requirements with a minimum of muss, labor and disturbance.

While a Bar-Z-Partition once built is permanent it can be readily dismantled and completely removed or cut into for openings. When necessary to cut an opening in a partition in an unforeseen location it is interesting to note that the test described on Page 8 conducted with the cooperation of observers from the Pittsburgh Board of Education, was carried farther than is mentioned on that page and an opening cut into the partition, about two months after the other tests, as shown in the illustrations on Page 8.

Bearing in mind that the partition was unsupported except at the ends, that no special double studs were used at the jambs as in ordinary construction (in fact the opening was cut at a theoretical "any point") and that the cutting was done with a hatchet and bolt cutters the cutting of the door was an extremely severe test of the materials involved in the construction of the Bar-Z-Partition as well as the partition system as a whole. Naturally the vibration of the actual cutting as well as the traffic vibration would in other types of partitions tend to destroy the suspended partition by cracking and deflection.

The day after the opening was cut the deflection was a "possible $\frac{1}{16}$ in." at center of the partition. No cracks developed at "any point." Note that the partition did not rest on the floor slab except insofar as it was supported at each end by 4 inch blocks.



(7) MISCELLANEOUS FEATURES OF THE BAR-Z-PARTITION

TERMITE PROOF

In many sections of the country the invasion of termites and the tremendous ravages which they have made in all forms of wood construction have made termite proof studs, lath and grounds necessary for satisfactory results. The Bar-Z-Partition offers this protection to those types of buildings which might not ordinarily consider such form required.

RODENT PROOF

An all metal and plaster partition offers little inducement to

rats and mice which is another factor to be considered in selecting partition construction.

AIR CIRCULATION

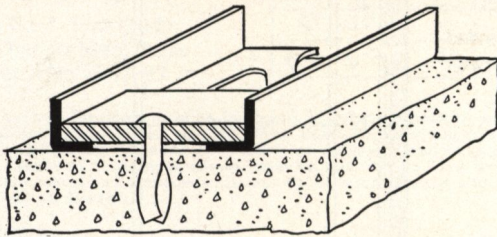
Bar-Z-Partitions are approximately 98% hollow and due to the open truss design of the studs a free movement of air is possible within a large area equalizing the temperature applied at any point. The air circulation is of particular value in Bar-Z-Furring since it tends to prevent condensation on the exterior masonry wall.

Details for Installing the BAR-Z-SYSTEM

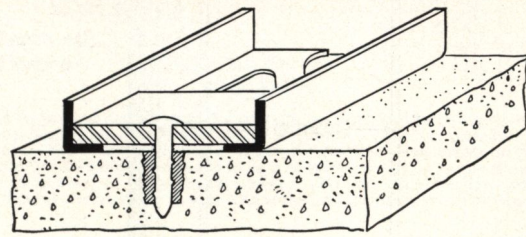
The simplicity of the Bar-Z-Partition and Bar-Z-Furring is noteworthy and the adaptability with which it lends itself to various construction requirements is shown in the details on the pages following. The Bar-Z-Partition is a tried and proved system; it has been in actual use in hundreds of installations for many years. During this time certain standards have been developed as a

result of practical experience and are shown on the following pages. These details will provide for practically any problem but if the architect or contractor does not find here the solution for his particular requirement, The Consolidated Expanded Metal Companies and its representatives will gladly cooperate in an effort to solve such problems as may be presented.

TYPICAL TRACK FASTENING AND CORNER CONSTRUCTION

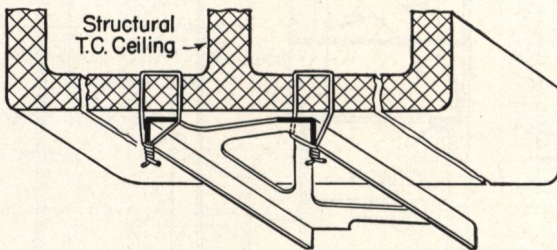


No. 1 - Cross Clip $1\frac{1}{4} \times \frac{3}{16}$ or $1\frac{1}{2} \times \frac{3}{16}$
Rawl Drive. No shield required

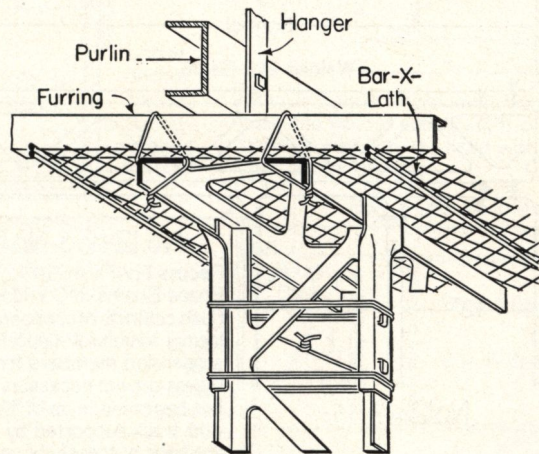


No. 2 - Cross Clip $1\frac{1}{2} \times \frac{3}{16}$ Anchor Nail
- With lead shield

Note:- Details 1 & 2 can be used for either floor or ceiling fastening to concrete - Track is centered on line of partition-holes drilled approx. 4'-0" o.c. and at track ends and secured by cross clips as shown - These methods are economical and prevent shifting of track - If hard $\frac{3}{4}$ " stub nails are used in place of cross clip method, they should be driven into concrete through the holes provided in web member of track along center line.



No. 3 - Wire Tied to Hollow T.C. as in
"Republic Arch System"
Tie holes are prick punched approx. 24" o.c.



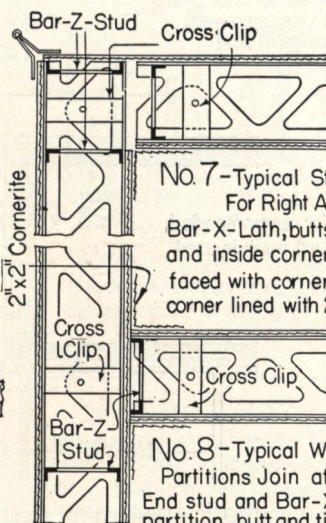
No. 4 - Wire Tied Approx. 12" o.c.
to Lath or Furring of Suspended Ceiling



No. 5 - Wood Sleepers Cast into Concrete
Common nail fastening through
holes in web of track.

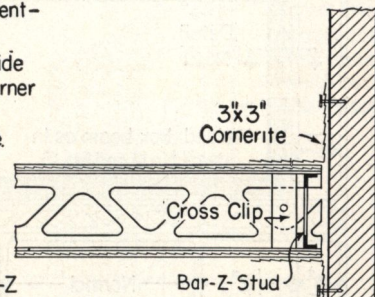


No. 6 - Cross Clip and
Toggle Bolt to Hollow T.C.
Approx. 4'-0" o.c.



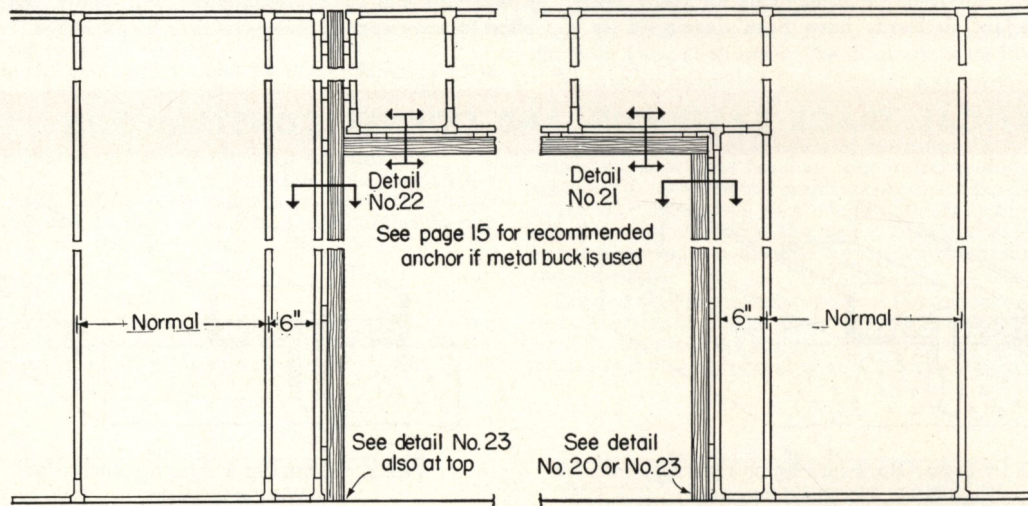
No. 7 - Typical Stud Arrangement -
For Right Angle Turn
Bar-X-Lath, butts at both outside
and inside corners - Outside corner
faced with corner bead - Inside
corner lined with 2x2 Cornerite.

No. 8 - Typical When Two Bar-Z
Partitions Join at Right Angles
End stud and Bar-X-Lath of cross
partition butt and tie to Bar-X-Lath
of adjoining partition - Corners are
lined with 2x2 Cornerite.



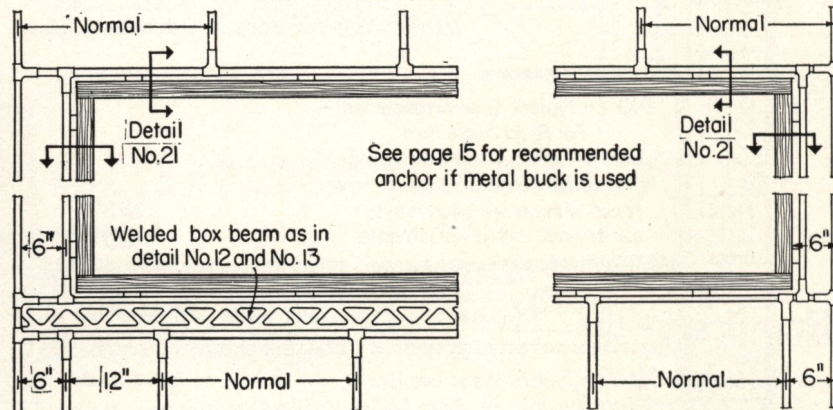
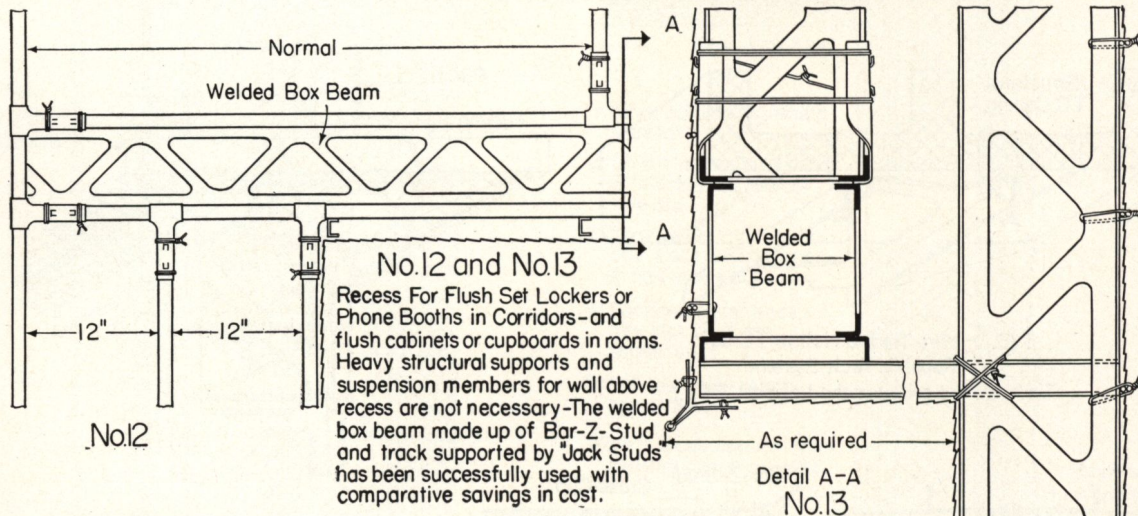
No. 9 Typical When Partition Abutts
Unfurred Masonry Wall
Bar-X-Lath butts to wall - Corners
are lined with 3x3 Cornerite.

TYPICAL STUD FRAMING FOR OPENINGS



No. 10 - Door Opening - With wood buck extending from floor to structural slab above

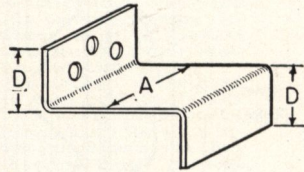
No. 11 - Door Opening - With "Jack Stud" framing for wood or metal buck - This method materially reduces and practically eliminates diagonal cracks in plaster at buck corners.



No. 14 - Framing & support for large or heavy borrowed light sash or windows - wood or metal buck - also heavy flush cupboards and cabinets, resting above floor line.

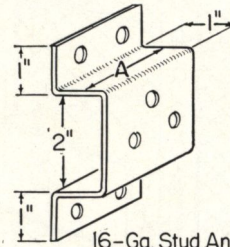
No. 15 - Framing for small or light windows and cabinets, wood or metal buck.

STUD AND FLOOR ANCHORS FOR METAL AND WOOD BUCKS



14-Ga. Z-Type Stud
Anchor for Metal Bucks
Detail No. 16-17-18

Stud Width	Widths & Clearances for Z Anchors				
	Dimensions				
	A	B	C	D	
2"	1 13/16	1 1/2	3 3/8	1 1/4	
3"	2 13/16	"	"	"	
3 1/4"	3 1/16	"	"	"	
4"	3 13/16	"	"	"	
6 1/8"	5 15/16	3 3/4	"	"	

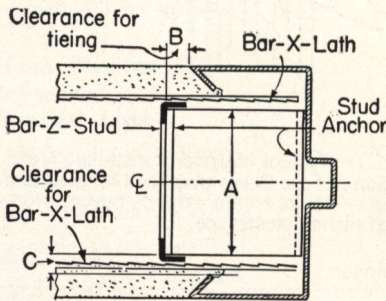


16-Ga. Stud Anchor
for Wood Bucks

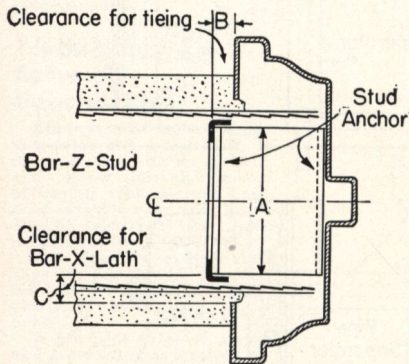
Stud Width	Widths for Wood Buck Anchors	
	Dimen. A	
2"	1 13/16	
3"	2 13/16	
3 1/4"	3 1/16	
4"	3 13/16	
6 1/8"	5 15/16	

Z-Type Stud Anchors for doors must be furnished by buck contractor—welded to inner face of buck as indicated so that center line of anchor will come on center line of Bar-Z-Partition—Spaced at 1/4 points on each side and at 1/8 points in the header. Table of clearances shown must be adhered to. For window bucks follow same detail and provide sufficient anchors top, bottom and sides for firm and secure anchorage.

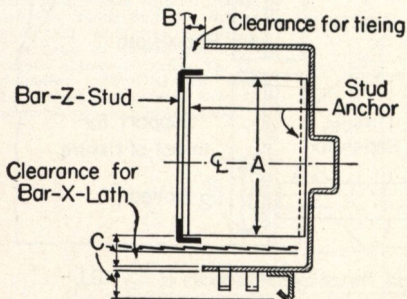
Wood Buck Stud Anchors for doors are to be furnished by the buck contractor or lathing contractor as directed by the Architect. They are carried by us as a stock item. They shall be nailed to the rough buck so as to center on the center line of the Bar-Z-Partition—Spaced at 1/4 points below and 1/8 points above header on each side also, at 1/8 points on header. Window Bucks follow same detail with sufficient anchors top, bottom and sides for firm and secure anchorage.



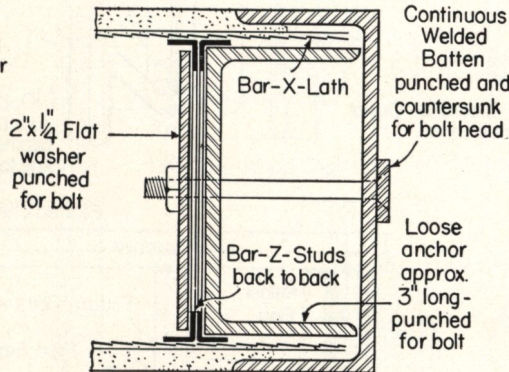
No. 16—Typical Flush Combination
Buck and Trim.



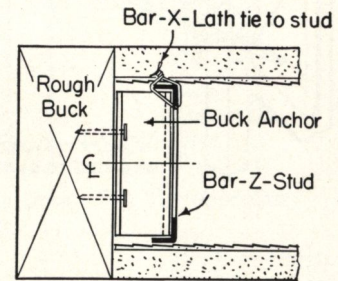
No. 17—Typical Combination
Buck and Moulded Trim



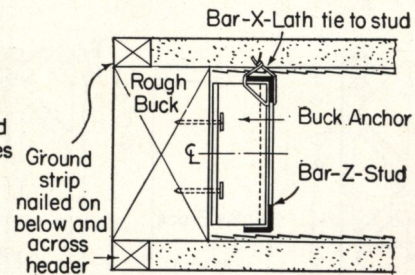
No. 18—Kalman Type Flush Buck



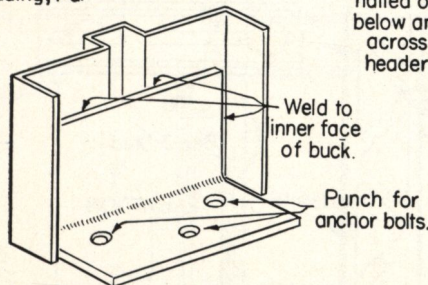
No. 19 Typical Structural Buck
As used for carrying fire door can be used with "Jack Stud" framing. Metal trim can be tap-screwed to, if desired. This detail is as developed and specified for Bar-Z-Partition in Transformer Houses by E. M. Gilbert Engineering Corp. of Reading, Pa.



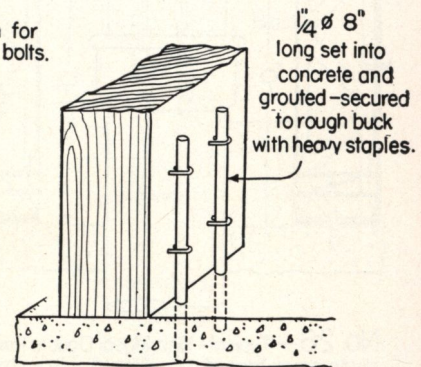
No. 21—Details where rough wood buck and header equals width of finished partition—as used with "Jack Stud" framing.



No. 22—Detail where rough wood buck extends from floor to structural slab above.



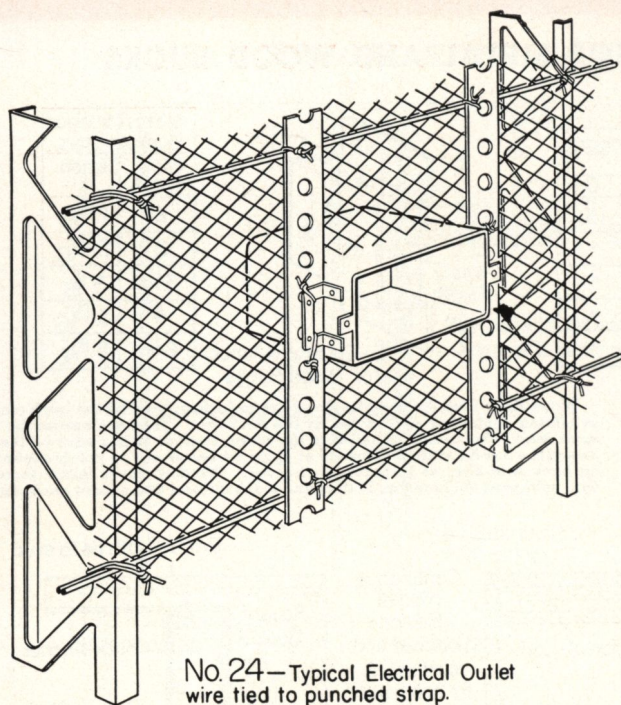
No. 20—Suggested Detail for Independent Anchoring of Metal Bucks to floor or ceiling.



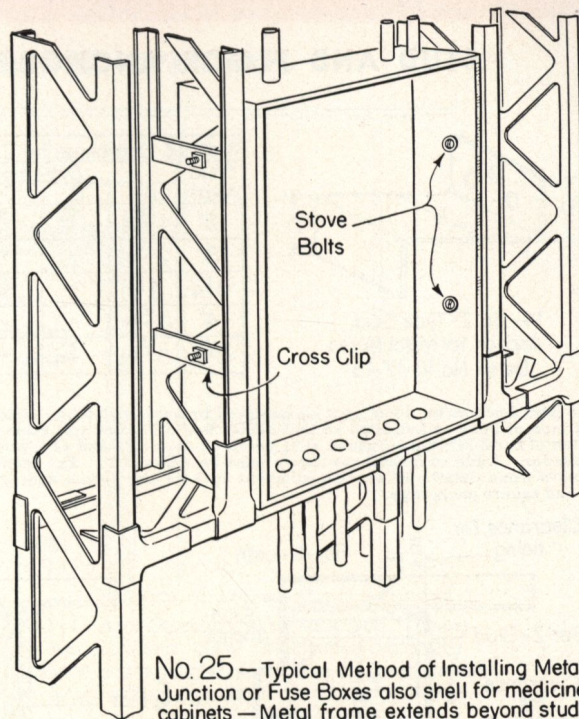
No. 23—Suggested Detail for Independent Anchoring of Wood Bucks to floor or ceiling.

IMPORTANT NOTE
Buck contractor must anchor bucks securely to floor independent of Bar-Z-Partition also to structural slab above where bucks run full height

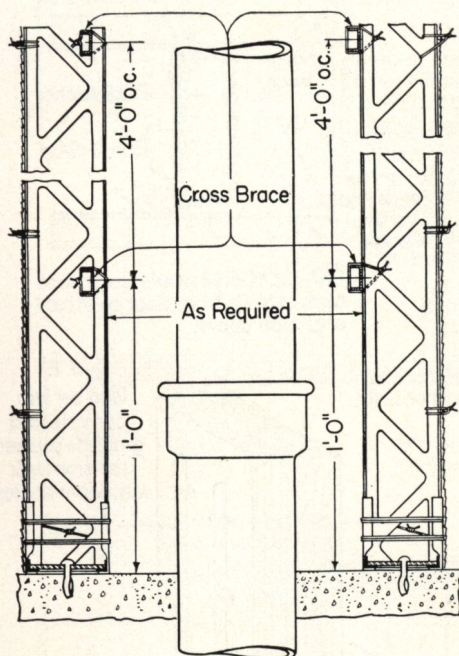
GENERAL DETAILS — BAR-Z-SYSTEM



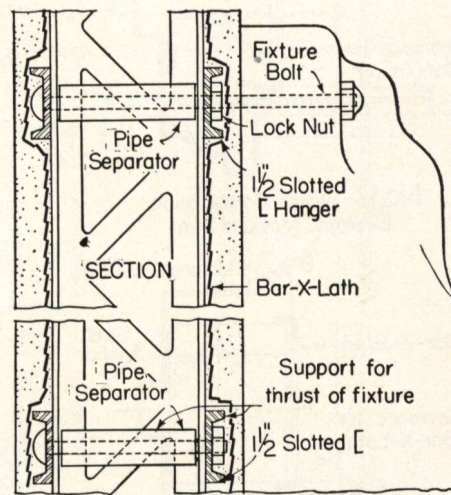
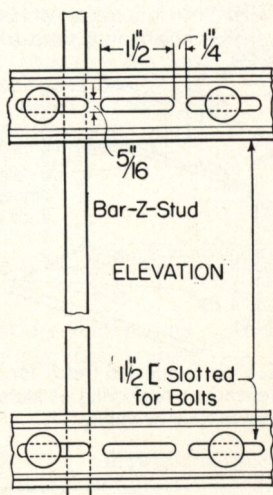
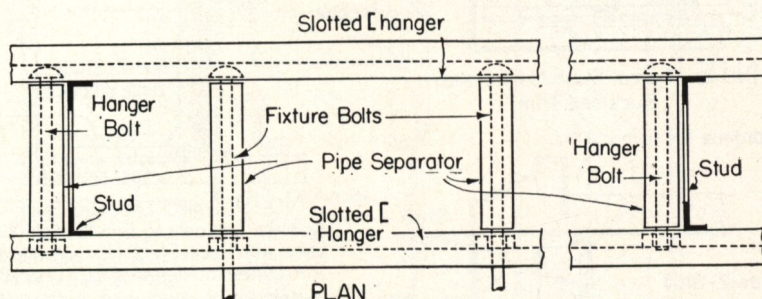
No. 24—Typical Electrical Outlet wire tied to punched strap.



No. 25 — Typical Method of Installing Metal Junction or Fuse Boxes also shell for medicine cabinets — Metal frame extends beyond stud line to finished plaster line.



No. 26—Typical Unbridged Double Partition studs cross braced on unlathed side suitable for concealing pipe stacks and ducts. This construction affords considerable extra sound insulation and is recommended where this condition is necessary—see page no. 10



No. 27—Heavy Fixture Hanger and Thrust Brace consists of 1 1/2 HR L-punched with slotted holes as shown — C's are set flush against studs and held in place by carriage bolts passed through 3/4 or 1" pipe separators which are cut just 'scant' of the stud width to permit drawing tight without 'crippling' the stud. Fixture bolts are then set in the same manner to template by the trade requiring same and fixed in place with a lock nut—before the partition is "lathed in"—Thrust brace, if required is set at proper location in manner noted above.

SELF ALIGNING METAL GROUNDS FOR ATTACHMENT OF METAL OR WOOD TRIM

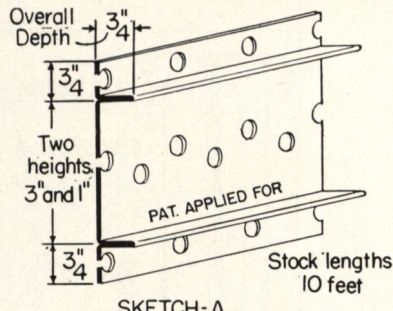
(Sold only with Bar-Z-System)

This ground made from 26 ga. galvanized Cop-R-Loy Steel is truly "self aligning." It is wire tied directly to Bar-Z-Studs before Bar-X-Lath is applied. The lath is placed over and tied to the perforated flanges. Installation is rapid, practical and economical because "shimming to line is not required."

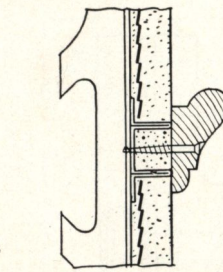
The double "ground lips" and metal back (see sketch "A") form a stiff rigid base for attaching trim. The space between ground lips may be filled with either plaster or wood filler strip—(see sketches "B" & "C"). The "Fire Resisting" and "Sound Insulating" qualities of Bar-Z-Partitions are retained.

When "Self Aligning" Grounds are used for attaching base trim, the usual stud shoes for track fastening may be eliminated.

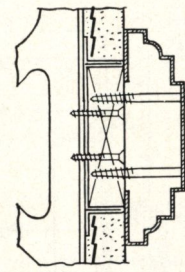
Special height grounds can be made for special conditions. Price, based on size and quantity required, will be quoted on request.



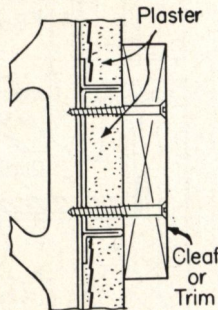
SKETCH-A



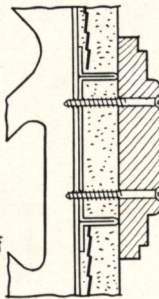
No.28-Wood Picture Mould



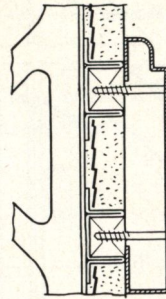
No.29-Metal Chair Rail



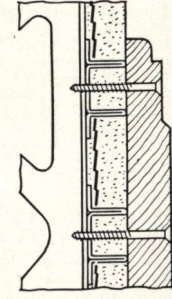
SKETCH-B



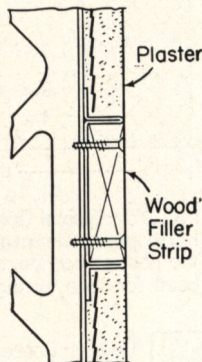
No.30-Wood Chair Rail



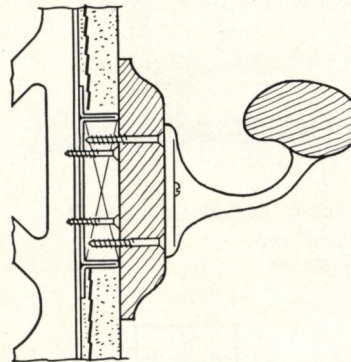
No.31-Metal Base



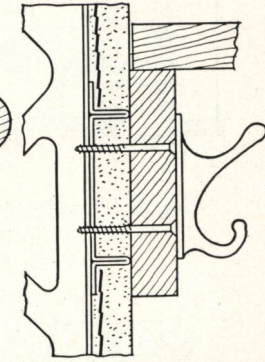
No.32-Wood Base



SKETCH-C



No.33-Cleat for Hand Rail



No.34-Cleat for Coat Hooks or Shelf Support

Flush Plaster Fill Between Ground Lips

Cleat or Trim is "positioned" and held or braced in place while holes are drilled and screws driven at two or three points, after which intermediate fastenings are made at will. Screws thread into metal back and draw tight.

Holes are drilled thru trim, plaster and back of metal ground in one operation with No. 33 drill. 2 in. No. 8 case hardened wood screw with No. 6 Phillips recessed flat head is recommended.

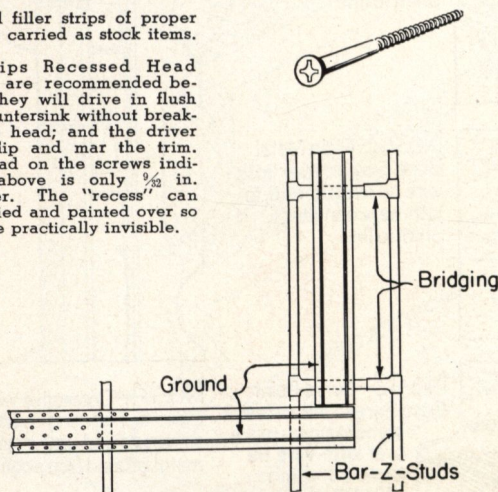
Flush Wood Filler Between Ground Lips

Filler is set—holes drilled thru filler and metal back, in one operation with No. 39 drill, and screw fastened before plastering. No. 6—case hardened wood screw with No. 6 Phillips recessed flat head is recommended.

This provides a firm rigid base for either nail or screw fastening of trim. It is quite practical where metal trim is used.

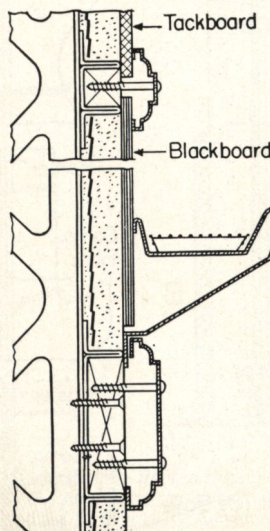
Wood filler strips of proper size are carried as stock items.

Phillips Recessed Head Screws are recommended because they will drive in flush and countersink without breaking the head; and the driver can't slip and mar the trim. The head on the screws indicated above is only $\frac{3}{16}$ in. diameter. The "recess" can be puttied and painted over so as to be practically invisible.

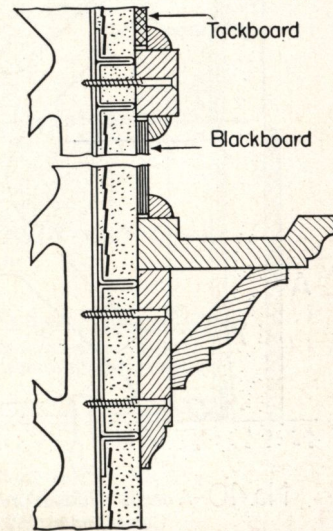


CORNER DETAIL

No.35-Vertical and Horizontal Grounds for Securing Black Boards

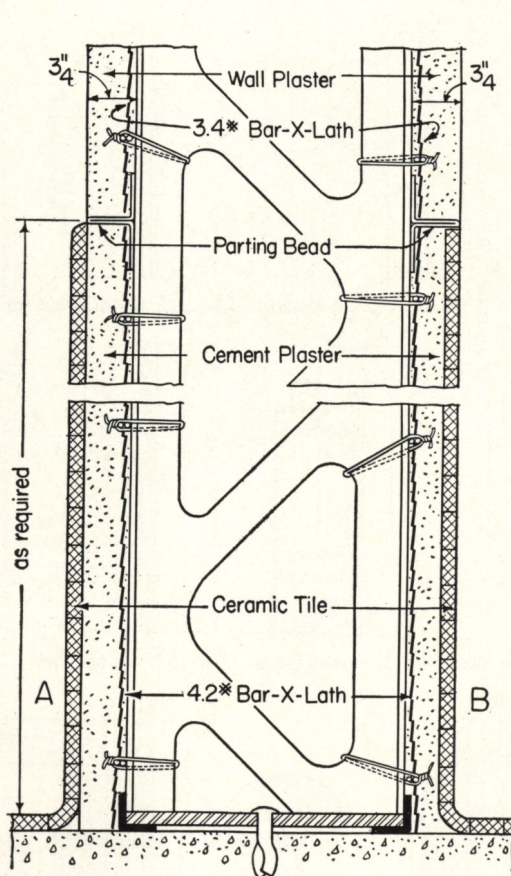


No.36-Metal Trim and Chalk Rail for Black Board and Tack Board

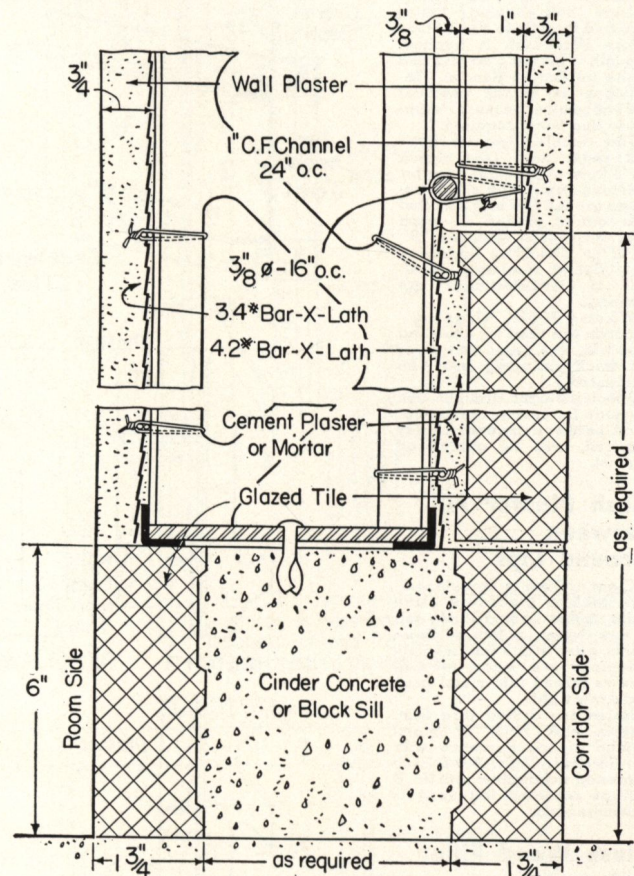


No.37-Wood Trim and Chalk Rail for Black Board and Tack Board

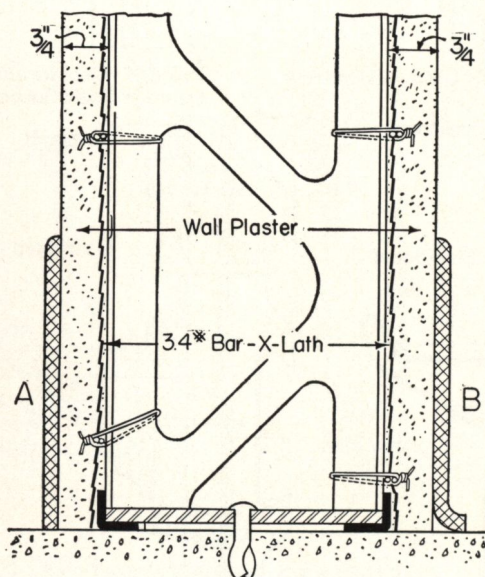
DADOS AND BASES



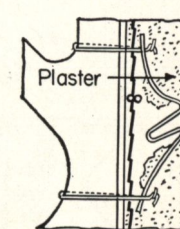
No. 38-A and B - Ceramic Tile Dado Cove Base
A - Round cap
B - Flush cap



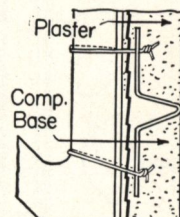
No. 39 - Typical Corridor Partition-Hospitals, etc.
Flush glazed tile base on room side and flush glazed tile dado on corridor side - If rounded or 45° cap is used for dado, furring above dado can be eliminated.



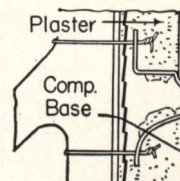
No. 40-A and B - Rubber or Asphalt Tile Base
Cemented to plaster
A - Straight base
B - Cove base



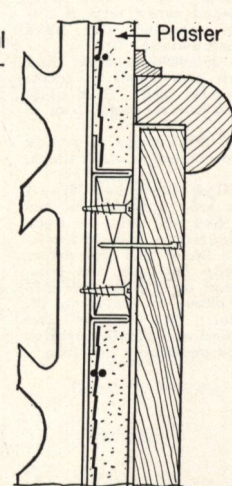
No. 41 - Concealed Metal Picture Mould-over lath-wire tie to stud and to lath between studs. Shim to line



No. 42 - Plain Metal Base Screed over lath-wire tie to stud and to lath between studs. Shim to line

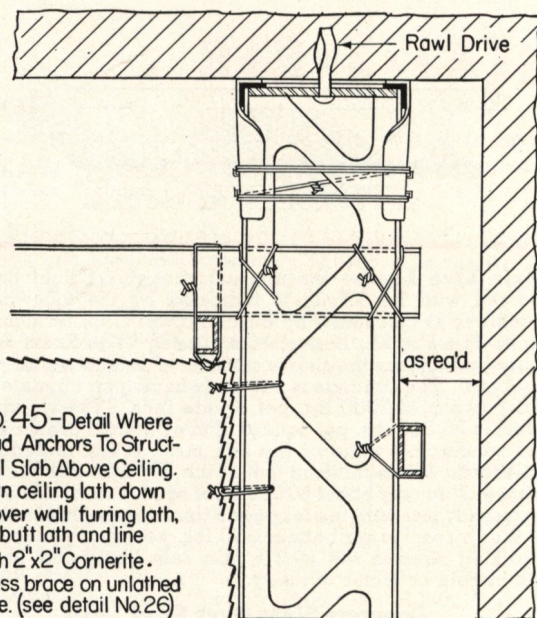


No. 43 - Curve Point Base Screed, for offset cement base-place over lath-wire tie to stud and lath between studs. Shim to line

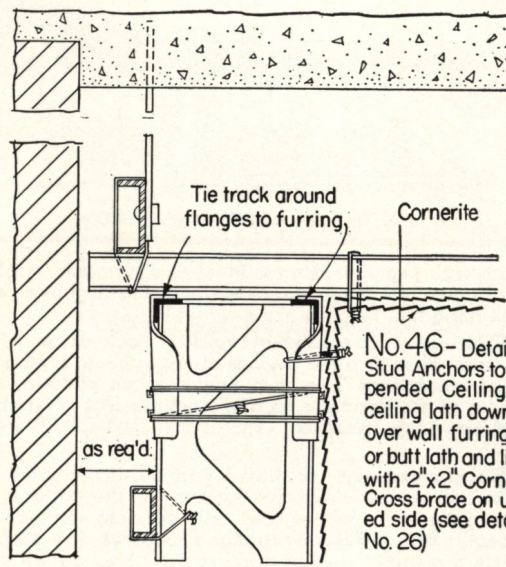


No. 44 - Decorative Wood Dado or Paneling-nailed to wood filled-self aligning metal ground (see page 17)

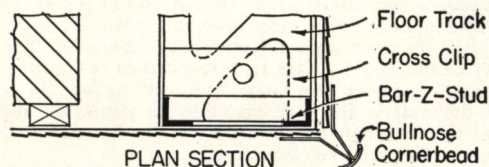
FREE STANDING WALL FURRING



No. 45—Detail Where Stud Anchors To Structural Slab Above Ceiling. Turn ceiling lath down 3" over wall furring lath, or butt lath and line with 2"x2" Cornerite. Cross brace on unlathed side. (see detail No. 26)



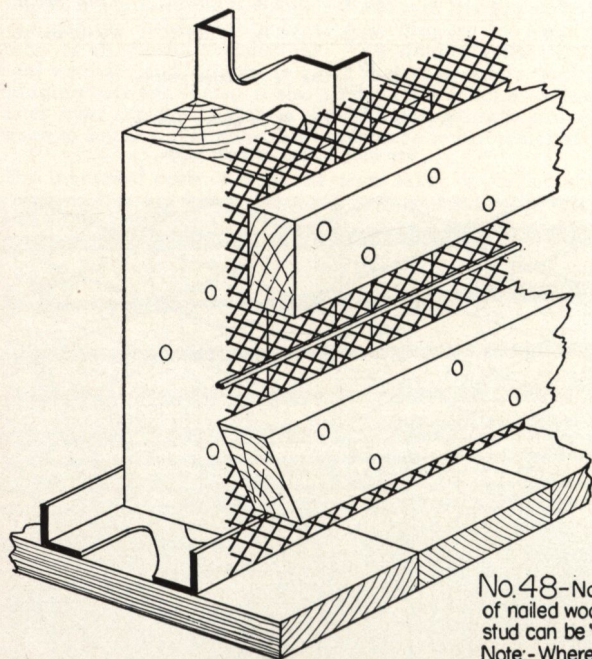
No. 46—Detail where Stud Anchors to Suspended Ceiling—Turn ceiling lath down 3" over wall furring lath, or butt lath and line with 2"x2" Cornerite. Cross brace on unlathed side (see detail No. 26)



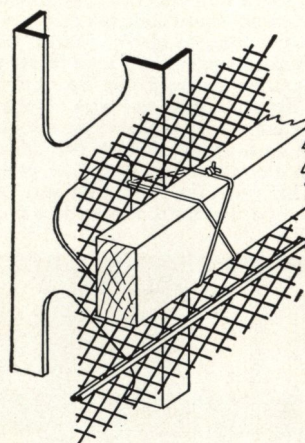
No. 47—Method of Turning Lath into Window Opening—Fur or stub nail to masonry.

ADVANTAGES OF FREE STANDING WALL FURRING ARE:-

- 1-No breaking of waterproofing seal on exterior walls.
- 2-Free air circulation to dispel condensation.
- 3-Free passage and concealment of vertical and horizontal ducts, pipes and wiring.
- 4-True straight wall surfaces regardless of alignment of masonry
- 5-Adaptable for concealed radiation under windows.
- 6-Rapid installation and no interference with work of masonry trade.



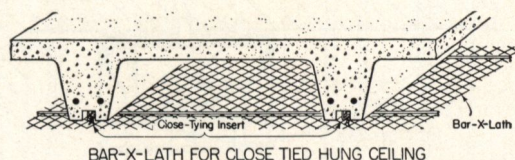
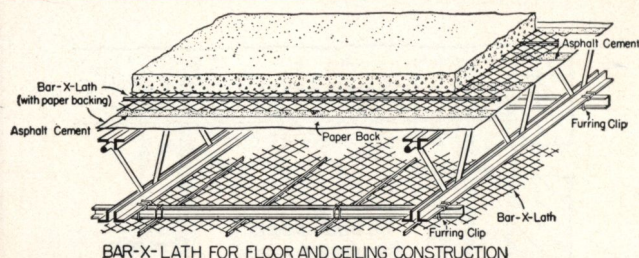
No. 48—Nailing Blocks—Spiked to studs for attachment of nailed wood grounds—horizontal bridging full width of stud can be "toe-nailed" to blocks where necessary.
Note:—Where local building or fire laws prohibit use of wood within partition—use metal grounds as shown on page 17.



No. 49—Typical Detail Wood Grounds wire tied over lath to studs and to lath between studs.

BAR-X-LATH — PAPER BACKED

for Reinforcing Concrete Floors Over Steel Joists or Junior Beams



Bar-X-Lath with paper backing is ideal as a form and reinforcement for light concrete floors laid over steel joists or junior beams. Some of the important features are as follows:

1—**Solid Ribs**—each rib consists of two No. 11 cold drawn wires—welded to each other thru the meshes of the lath—to form a "stiff beam"—ribs are spaced 7 in. o.c. and have an effective cross-sectional area of .0391 square inch of steel per foot of width, **exclusive of the lath meshes**. This is standard for all weights of Bar-X-Lath.

2—**True Reinforcement**—the ribs lay in substantially the same plane as the lath meshes—and are therefore in the position, near the bottom of the slab, where they will be most effective as a reinforcement. **Bar-X-Ribs actually reinforce the slab** and do not create a plane of weakness above the rib as do the hollow rib laths.

3—**Paper Back**—either Kraft paper or waterproof paper, as may be wanted, is attached to the lath meshes by two—1 inch wide strips of asphalt cement spaced equidistant between the ribs longitudinally of the sheet. This feature permits the paper back to "give slightly" between the "asphalt strips" when the slab is poured, and thus allow the wet concrete to penetrate the lath keys between the "asphalt strips" and form a "moulded bond" around and under the solid reinforcing ribs.

The paper back retains the moisture in the slab until "set"; aids in the "normal curing" of the concrete—and prevents "Honey-combing" on the under side of the slab due to dripping.

4—**On the job**—damage to the solid ribs cannot occur in handling—even when run over by a loaded "buggy." The solid ribs cannot be crushed, as in hollow rib laths, and nesting difficulties are eliminated. The extra stiffness of Bar-X-Lath minimizes sagging between joists and thereby saves wastage of concrete. Bar-X-Lath lays flat and level, stretching to flatten "kinks" is not required—thus, **there is no strain imposed on end joists due to stretching**. Bar-X-Lath handles fast and can be "clipped"—"tied" or "pegged" in place, depending on the type of joist used.

Side laps, approximately 1 inch wide, should be tied once between joists—End laps, approximately 6 inches long should be staggered in alternate rows of lath and tied at both ends of the lap on each rib. This provides continuity and prevents hinging. Such laps may come at any point between joists.

5—**Safe Live Loads**—the unusual strength of light floor slabs reinforced with Bar-X-Lath is indicated by the following table. This table is as calculated by Burtis Brown, C.E., Structural Engineer, 45 Franklin St., Boston, Mass., using "The Exact Formula." In these calculations the slab is considered as continuous over 3 or more spans. The concrete is 1-2-4 mix having an ultimate strength in compression of 2000 lbs. per square inch. The working stress for steel is 20,000 lbs. per square inch as in cold drawn wire.

The reinforcing value of the lath mesh is not included in the calculations. It is significant that in the 1½ inch slab the concrete is "stressed" to only about 500 lbs. per square inch. This becomes progressively less with the increased thickness so that in the 3 inch slab, the "stress" is well under 300 lbs. per square inch. Thus—all working stresses are well within safe limits and provide an ample margin or factor of safety.

Concrete Slabs Over Steel Joists Reinforced with Bar-X-Lath

Table of Safe Live Loads in Pounds per Square Foot
Uniformly Distributed—Weight of Slab Deducted

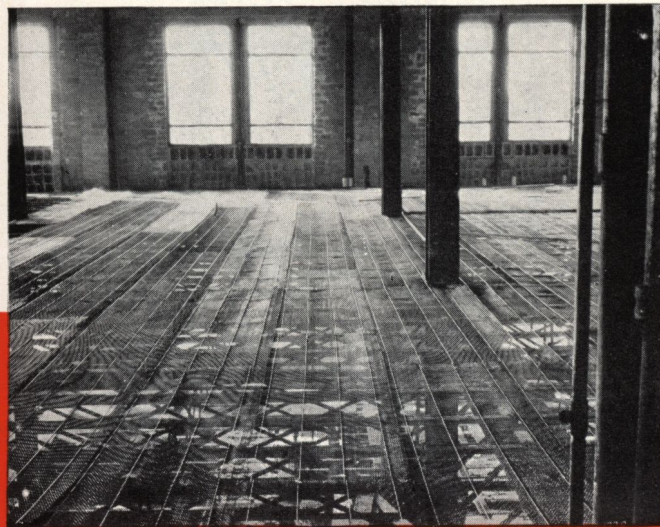
$$M = \frac{Wl^2}{12}$$

Span of Slab in inches	Thickness of Slab in Inches				Weight of Bar-X-Lath Recommended
	1½ in.	2 in.	2½ in.	3 in.	
16	433 lb.	636 lb.	835 lb.	1022 lb.	3.4 lb. per sq. yd.
20	269 lb.	398 lb.	523 lb.	640 lb.	3.4 lb. per sq. yd.
24	181 lb.	269 lb.	354 lb.	433 lb.	4.2 lb. per sq. yd.
27	139 lb.	207 lb.	273 lb.	334 lb.	4.2 lb. per sq. yd.
30	109 lb.	163 lb.	215 lb.	264 lb.	4.6 lb. per sq. yd.

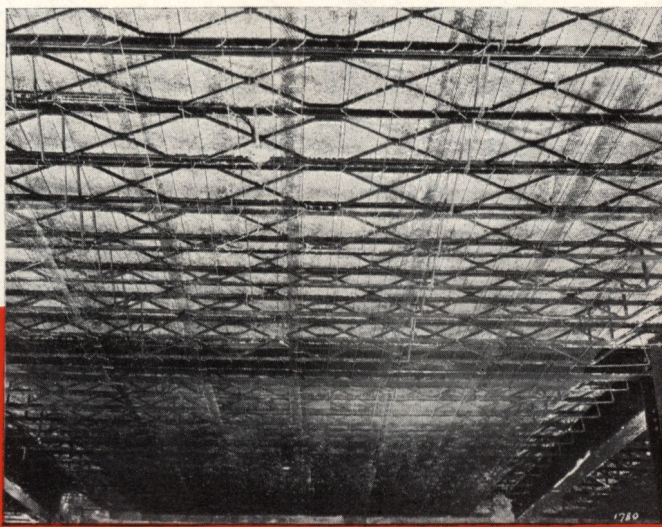
$$\text{For } M = \frac{Wl^2}{10} \text{ Use } \frac{5}{6} \text{ of above values.}$$

$$\text{For } M = \frac{Wl^2}{8} \text{ Use } \frac{2}{3} \text{ of above values.}$$

See note at top of next page.



Bar-X-Lath for Floor Construction, Top View



Bar-X-Lath for Ceiling Construction, Bottom View

Note: The recommendations for weight of Bar-X-Lath for various spans in safe live load table are based on average conditions of usage. However, due to special or unusual means afforded by some types of steel joist for securing the lath to the joists, it is possible to use the 3.4 lb. Bar-X-Lath for all spans shown in table

on Page 20; and under these conditions, the joist manufacturers recommendations should govern.
These safe live loadings are based on the reinforcing value of the **solid ribs** of Bar-X-Lath **only**, and this is the same for all weights of Bar-X-Lath.

BAR-X-LATH FOR CEILINGS

Bar-X-Lath is particularly suited for use with wide spaced furring or for "close tied" attachment direct to the underside of Bar-Joist—or "Ribbed Concrete" Construction.

No Dust Streaking—The solid ribs lay in substantially the same plane as the lath keys, are completely imbedded in plaster—and permit uniform thickness and keying of plaster as in diamond mesh lath. This prevents the "dust streaking" which frequently appears in jobs where flat rib or hollow rib lath has been used and in which the pattern of the rib, because of non-uniform plaster thickness, shows thru the finished plaster ceiling in the same manner as in wood lathed jobs.

Economy plus Quality—The extra rigidity and strength of Bar-X-Lath, makes practical the use of wider than normal spaced furring; prevents sagging while the plaster is wet, and eliminates "shaking off" of plaster from vibration during application. The ribs act as a "screed" to insure proper thickness of "scratch coat." Many building codes do not permit attachment of lath directly to the underside of Bar Joist Construction, but require channel furring

for fireproofing; therefore, the wider spacing of furring made possible by Bar-X-Lath will reduce the "extra cost of furring" proportionately.

The following table shows weights of Bar-X-Lath recommended for ceilings for various spacings of furring or joists.

Table of Bar-X-Lath for Ceilings	
Span of Joists or Spacing of Furring in inches	Weight of BAR-X-LATH Recommended
16	3.4 lb. per sq. yd.
19	3.4 lb. per sq. yd.
24	4.2 lb. per sq. yd.
30	4.6 lb. per sq. yd.

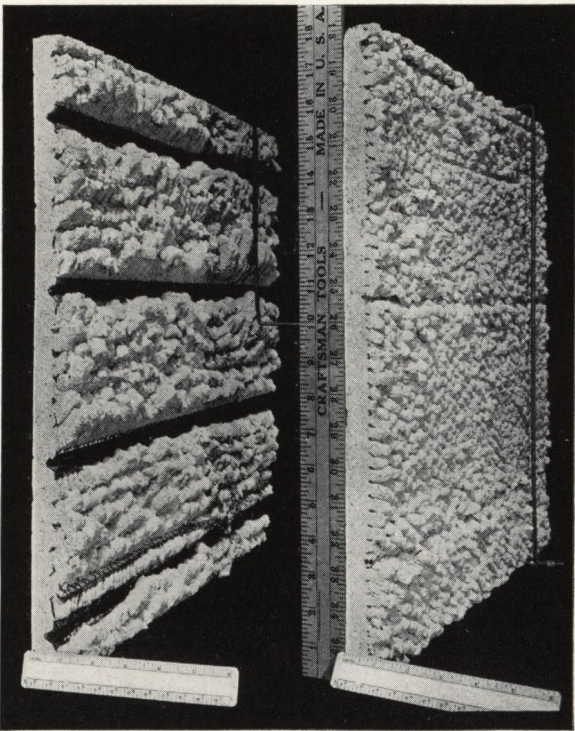
WHY IT IS ESSENTIAL TO USE BAR-X-LATH FOR BAR-Z-PARTITIONS

The question is sometimes raised as to why we advocate the use of Bar-X-Lath on Bar-Z-Partitions and discourage the use of other of our laths such as 3/8 inch hollow rib lath—or regular diamond lath.

The following we offer in explanation:

- (1)—Economy and comparative costs with block and masonry type partition indicate a 24 inch spacing of studs.
- (2)—Bar-X-Lath is designed to span a 24 inch stud spacing and does so in an entirely satisfactory manner as evidenced by tests and hundreds of successful installations. The double solid rib has sufficient strength and rigidity to carry that span safely, and act as a bridging between studs. It also allows a full uniform coverage of plaster over the lath which is essential for ultimate strength resistance to sound penetration, and resistance to fire penetration.
- (3)—The increased costs of studs, tie wire, labor of placing studs and tying on lath for reduced spacing as compared with 24 inch spacing is approximately 48% for 16 inch spacing and 98% for 12 inch spacing which will reflect themselves in the finished cost of partition by increases of approximately 10% for 16 inch spacing and 20% for 12 inch spacing. Of course the cost of lath itself and plastering would be approximately the same regardless of spacing.
- (4)—The accompanying photographic illustration will indicate the relative structural merits of Bar-X-Lath and 3/8 inch hollow rib lath. Note the uniform thickness of plaster and key on the Bar-X-panel and the opposite condition in 3/8 inch rib panel. Note also the plane of weakness created over each hollow rib where the plaster is only 3/8 inch thick and which will have a tendency to produce cracks, particularly where vibration is present in a structure.

Both of these panels were cut with a rotary saw from larger finished panels. Their weights are nearly identical, altho 3/8 inch rib lath panel is slightly heavier due to wastage at key points.
Obviously 3/8 inch hollow rib lath is not suited to this type of construction from the viewpoint of structural value, sound insulation or fire retardance. Sheet laths with a multiplicity of "humps" or protrusions on the surface which tend to reduce plaster thickness at these points would fall in the same class as hollow rib laths.



3/8 in. Rib Lath Bar-X-Lath

- (5)—Diamond Lath weighing 3.4 lbs. per square yard is a satisfactory plaster base, provided stud spacing is reduced to 12 in. This however will increase the finished cost of partitions approximately as noted above.

Foreword for the Architect:—

The following specification is offered as a complete exposition and reference from which the Architect may "lift" for use in his own specification such data and detail as in his opinion are pertinent and applicable to a specific project.

In the interest of co-ordinating the work of the several trades whose work may "tie in" with the construction of Bar-Z-Partition or Free Stand-

ing Wall Furring, it is suggested that the notes, as applicable to the several trades, noted below be included in the specifications or contract for such respective trades as may be pertinent to the project in hand.

It has been our experience that adherence to the suggestions offered herein will facilitate the work of construction and insure a satisfactory installation.

LATHING CONTRACTORS SPECIFICATIONS

Plastering Base for Non-Bearing Partition and Free Standing Wall Furring

A—DESCRIPTION

1—Wherever plastered non-bearing partition (and) (free standing wall furring) is indicated on the plans, or in the specifications, The Steelcrete Bar-Z-System, consisting of a combination of Bar-Z-Studs and Bar-X reinforced diamond mesh lath, as manufactured by The Consolidated Expanded Metal Cos., shall be used as a base for plaster.

(a) A single line of Studs, lathed on both sides will be indicated as type "A" partition.

(b) A single line of Studs, lathed on one side only will be indicated as type "B" partition—or as "Free Standing Furring," depending on where it is used.

(c) Two parallel lines of Studs lathed across the outer flanges of each line to form a hollow partition, unbridged between the two lines of studs will be indicated as type "C" partition.

2—Erection and construction of Bar-Z-Partition (and free standing wall furring) shall be in accordance with recommended details of construction as described in the manufacturers catalog (No.—) or as specifically described or modified herein or indicated on the plans by the Architect.

B—MATERIALS

1—Bar-Z-Studs, shall be 16 gauge steel channels, cold formed and punched along the entire length of the web between flanges, with triangular openings having alternately opposed apices, to form an open diagonal truss bracing. Studs shall be asphaltum coated, and shall have a width of 2", 3", 3½", 4" or 6½" as may be indicated on the plans or elsewhere herein.

2—Bar-Z-Track for floor and ceiling attachment shall be of the same general character as Bar-Z-Stud, but sufficiently wider than the stud so as to receive the stud and make a "neat fit."

*Architect Note:

3" Stud is made on special order only and is not carried as a stock item.

All Bar-Z-Studs and track can be furnished on special order, made from Cop-R-Loy rust-resisting steel at slight additional cost.

3—Bar-X-Lath shall be asphaltum coated, expanded steel mesh having diamond shaped keys, or plaster bonds; each sheet of which shall be reinforced with four pairs of No. 11 gauge wire rods, spaced 7" on centers, starting 3" in from the longitudinal edges of each sheet; the four rods on the face of each sheet to be placed directly in line with the four rods on the opposite side of each sheet to form four pairs; the members of each pair shall extend longitudinally the entire length of each sheet and shall be securely welded one to the other, thru the meshes, along the entire length of each pair.

4—Bar-X-Lath shall weigh 3.4 lbs., 4.2 lbs. or 4.6 lbs. per square yard inclusive of the reinforcement. For partitions (and) (wall furring) generally, the 3.4 lb. weight may be used except where special or unusual conditions of service require the heavier weights to be used as noted on the plans or indicated elsewhere herein. Where Ceramic or Glazed tile facing is to be applied to the partition (and) (wall furring) the heavier weights, as indicated on detail drawings, shall be used.

Architect Note:

Bar-X-Lath can be furnished in Cop-R-Loy rust-resisting steel at slight additional cost.

5—Tie Wire shall be 18 gauge Cop-R-Loy steel, dead soft, zinc coated—of certified Steelcrete quality.

6—Accessories wherever indicated as being required, such as Corner Beads, Base Beads (plain or curve point), Concealed Picture Mould, Parting Beads, or Self-aligning Metal Grounds for attachment of trim, shall be made of 26 gauge galvanized Cop-R-Loy steel.

Architect Note:

All the above items of our own manufacture are furnished standard in Cop-R-Loy rust-resisting steel at no extra cost.

C—CONSTRUCTION AND ERECTION

1—The lathing contractor shall inform himself as to the work of other trades which it is intended shall come within and be concealed within the Bar-Z-Partitions (and) (wall furring) and he shall co-ordinate his work with that of the other trades so that all work may proceed in an orderly

manner. Charges for "extras" caused by failure to observe this requirement will not be honored.

2—Where practical to do so, Bar-Z-Track and Studs may be set before work of other trades which is to be concealed within the Bar-Z-Partition (and) (wall furring) is installed. However, lath shall not be applied so as to "close in" the Bar-Z-Partition (and) (wall furring) without permission of the (Architect's representative) (General Contractor's Superintendent) who will determine whether the work to be concealed is satisfactorily completed and ready for "closing in."

3—Bar-Z-Track shall be placed true to line and securely attached to both floor and ceiling construction, in the manner described herein or as shown in detail drawings—or as may be otherwise approved by the Architect. Such fastenings shall be made at both ends of every piece of track; intermediate fastenings shall be spaced, depending on the type of fastening used, as authorized by the Architect, or called for herein or as indicated on the drawings.

Architect Note:

Conventional details of satisfactory methods of fastening are shown on page 13.

4—Bar-Z-Studs shall be set plumb and securely fastened to both top and bottom track members by means of Bar-Z-Shoes. Two strands of 18 gauge galvanized tie wire shall be passed twice completely around the shoes, drawn tight and tied with a twist tie.

(a) Where "self-aligning grounds" for base (as shown on page 17) are used, Bar-Z-Shoes may be eliminated and such grounds shall be tied directly to the stud, top and bottom of the ground where it crosses each stud.

(b) Clearance up to 1½ inch between top of stud and top track is permissible.

(c) Maximum spacing of studs shall be governed by size of stud and permissible height for same as shown in the following table—

Spacing For Heights Shown

Stud Width	24" O.C.	19" O.C.	16" O.C.
2"	10 feet	15 feet	18 feet
3"	12 feet	17 feet	20 feet
3½"	13 feet	18 feet	21 feet
4"	16 feet	20 feet	22 feet
6½"	20 feet	24 feet	26 feet

5—Bar-X-Lath shall be placed with the reinforcement running horizontally. It shall be wire tied to the studs. A tie shall be made to the stud at each rib where it crosses the stud; also at each rib and between ribs where vertical laps occur at a stud. Where vertical laps occur between studs, both ends of the lap shall be tied on each rib, and one tie made between ribs. Vertical laps shall be approximately 2" wide and shall be broken or staggered in alternate rows of lath to avoid continuity. Horizontal laps shall be approximately ½" deep and shall be tied to each stud, and once between studs along the line of the lap. The ends of all ties shall be turned back into the lath.

6—Vertical Corners shall be formed as described herein or as shown on detail drawings.

(a) Outside corners shall be formed from an assembly of 3 studs placed to form 3 sides of a hollow box, with the flanges of the studs facing outwardly therefrom. Bar-X-Lath shall extend on both sides and butt at the "nose" of the corner, and shall be securely tied on each flange of each stud forming the corner. Corner Bead or other "nosing" as indicated elsewhere or shown in detail drawings shall be applied to all vertical outside corners.

(b) Inside corners shall have Bar-X-Lath butted into the corner and lined with 2"x2" Cornerite. All shall be securely tied to adjacent stud flanges.

(c) Where a cross partition abuts another line of Bar-Z-Partition (and) (wall furring), the end stud of the cross partition shall be securely tied to the Bar-X-Lath of the partition which it abuts; the resulting inside corners shall be lathed as described for (b) above.

(d) Where a Bar-Z-Partition abuts an unfurred exterior or masonry wall, the end stud of the partition shall be placed "just clear" of the

wall, Bar-X-Lath shall butt to the wall and the resulting inside corners shall be lined with 3"x3" Cornerite. All to be securely tied to the end stud and one "leg" of the cornerite nailed or otherwise secured to the masonry wall.

Architect Note:

For corner assembly and construction, see details 7-8-9, page 13.

7—Stud Framing for openings to receive bucks for various conditions, such as doors, windows, cabinets, cupboards, etc. shall be as described herein—or as shown on the drawings. Vertical Studs and headers and under-framing shall be securely attached to buck anchors provided and attached to bucks by others.

(a) Bar-X-Lath shall be securely attached to all stud framing members around openings.

(b) Where combination metal buck and trim are indicated, Bar-X-Lath shall enter the space behind the trim to approximately the full depth of the trim.

(c) Where wood bucks are indicated, Bar-X-Lath shall butt to the buck but shall not be nailed or otherwise fastened to it.

Architect Note:

Details 10 to 15 inclusive on page 14 and No. 25 on page 16 illustrate typical methods of framing openings.

8—Metal Corner Beads, Screeds, Base Beads, Concealed Picture Mould etc. wherever indicated on drawings or called for herein, shall be placed over the Bar-X-Lath shimmed to line and be securely wired to both studs and lath.

Architect Note:

See details 41, 42 and 43 page 18. Also, Detail 7 page 13 and Detail 13 page 14.

9—Self-Aligning Metal Grounds either wood or plaster-filled for attachment of trim wherever called for herein or indicated on the drawings shall be wired directly to the studs top and bottom of the ground at each stud. Bar-X-Lath shall break above and below each ground, shall overlap the vertical flanges of the ground and be securely attached thereto.

Architect Note:

See details No. 28 to No. 37 inclusive, page 17, also, No. 44 page 18.

10—All Free-Standing Furring or Partitions indicated as types "B" or "C" shall be cross-braced on the unlathed sides of the studs. Cross bracing shall be $\frac{3}{4}$ " or 1" cold formed channels, placed horizontally across the stud flanges—or threaded thru the openings in the studs and securely tied thereto. Cross-bracing shall be spaced approximately 12" up from the floor and 12" down from the ceiling with intermediate bracing approximately 4 feet on centers.

Architect Note:

See detail No. 26 page 16 and No. 45 and 46 on page 19.

11—Parting Beads where required for the separation of different types of plaster shall, as directed by the Architect, be furnished by the contractor requiring same, for installation by the lathing contractor.

SPECIFICATIONS FOR RELATED WORK

Notes to Be Included in Specifications and Contracts for Co-operating Trades to Facilitate and Insure Co-ordination of Work

1—PLASTERING CONTRACTOR

(a) Wall plaster as elsewhere provided for herein shall be applied to all Bar-Z-System Non-Bearing Partitions (and) (Free Standing Wall Furring) to a thickness of $\frac{3}{4}$ " beyond the face of the stud flange wherever plastering is indicated.

Note:

Type "A" partitions have plaster on both sides.

Type "B" partitions and Free Standing furring have plaster on one side only.

Type "C" partitions have plaster on one side of each of 2 lines of stud.

(b) This contractor (shall) (shall not) apply cement base coats for Ceramic or Glazed tile facing (and) (Flush or offset cement bases).

(c) If this contractor applies cement base coats for tile or cement bases, he shall furnish the lathing contractor with suitable parting beads for the separation of the different types of plaster; this does not include common metal screeds or curved point base beads which are furnished by the lather under his contract.

2—METAL BUCK MANUFACTURER—AND—METAL BUCK ERECTION CONTRACTOR

(a) This manufacturer shall supply Z-type anchors welded to the inner face of all metal bucks or combination metal buck and trim units, centered to line with the center line of Bar-Z-System partitions wherever such bucks are to be used in connection with the Bar-Z-System. Dimensions, Clearances and spacing for Z-anchors as shown on detail drawings (or) (as given on page 15 of Bar-Z-System Catalog issued by the Consolidated Expanded Metal Cos.) shall be adhered to.

(b) Door Bucks shall have suitable anchors for securing same to floor (and ceiling) welded to the inner faces of the bucks.

(c) Door Bucks shall be securely anchored to floor (and ceiling) and braced against displacement, prior to the erection of, and independent of the Bar-Z-Partitions.

(d) Window Bucks and Bucks for other openings, resting above the floor line shall be set in stud framing for such openings as provided by the lathing contractor. These two contractors shall co-operate in this work.

3—PLUMBING CONTRACTOR

This contractor shall inform himself as to which, if any of his work rises or runs within, or penetrates Bar-Z-System Partitions (and) (wall furring) and he shall co-operate with the lathing contractor so that the latter's work shall not be delayed.

(a) Where hangers and thrust bracing are required for the support of heavy fixtures, they shall be furnished and installed by this contractor before partitions are lathed or closed in. Hangers shall be as shown on detail drawings or as approved by the Architect.

Architect Note:

Suitable hanger and thrust brace is shown in detail No. 27—page 16.

4—HEATING AND VENTILATING CONTRACTOR

This Contractor shall inform himself as to which, if any of his work rises or runs within, or penetrates Bar-Z-System Partition (and) (wall furring) and he shall co-operate with the Lathing contractor so that the latter's work shall not be delayed.

5—ELECTRICAL CONTRACTOR

This contractor shall inform himself as to which, if any of his work rises or runs within, or penetrates Bar-Z-System Partition (and) (wall furring) and he shall co-operate with the Lathing contractor so that the latter's work shall not be delayed.

6—CERAMIC TILE OR GLAZED TILE CONTRACTOR

(a) This contractor (shall) (shall not) apply the necessary cement base coats, to Bar-Z-System Partition (and) (wall furring), to receive his tile work.

(b) If this contractor applies cement base coats to receive his tile work, he shall furnish the lathing contractor with suitable parting beads for the separation of the different types of plaster. The lathing contractor will install such parting beads.

(c) This contractor shall provide suitable covering for his work so as to protect it while other trades are working around it.

7—CARPENTER CONTRACTOR

(a) Wherever wood bucks are indicated to come in Bar-Z-System Partition (and) (Free Standing Wall Furring) this contractor shall supply and attach to such bucks 16 gauge steel stud anchors as shown on (detail drawing) (page 15 of Consolidated Expanded Metal Cos. Bar-Z-System Catalog). They shall be nailed to rough buck so as to center on the center line of the partitions. Spaced at $\frac{1}{4}$ points below and $\frac{1}{4}$ points above header on each side of door bucks; also, at 3rd points on the header. Window bucks follow same detail with sufficient anchors top, bottom, and sides for firm and secure anchorage.

(b) All door bucks shall be securely anchored in an approved manner to floor (and ceiling) independently of the Bar-Z-Partitions (and) (wall furring).

(c) Where self-aligning metal grounds are indicated as a base for the attachment of trim or other carpentry work, such grounds shall be supplied and installed by the lathing contractor. These grounds may be either wood or plaster filled (as indicated in detail drawings), depending on the type of trim or method of fastening to be used.

(d) When self-aligning metal grounds are plaster filled, attachment of trim shall be by means of 2 inch No. 8 case hardened wood screw having a No. 6 Phillips recessed flat head. The trim or cleat shall be "positioned" and held or braced in place while holes are drilled and screws driven at two or three points, after which intermediate fastenings are made at will. Screws thread into metal ground and draw tight. Holes are to be drilled with a No. 33 drill thru trim, plaster and back of metal ground in one operation.

(e) When self aligning metal grounds are to be wood filled, for either nail or screw fastening of trim, flush wood filler strips of proper size shall be furnished and installed by the carpenter before plastering is started. Holes shall be drilled with a No. 39 drill thru filler and metal back of ground in one operation and filler fastened to metal ground with $1\frac{1}{4}$ inch No. 6 case hardened wood screws having No. 6 Phillips recessed flat head.

Architect Note:

Details for self aligning grounds are shown on page 17.

(f) Wood nailing or spiking blocks where indicated shall be furnished and attached to Bar-Z-Studs by the carpenter before lathing is started.

Architect Note:

See detail No. 38, page 19.

(g) Nailed-on wood grounds shall be placed over the lath and nailed to spiking blocks at each stud. Ties shall be made to lath between studs if required.

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